MAKING SOCIAL SCIENCE STUDIES

Third Revised Edition

BY

EMORY S. BOGARDUS

Head of the Department of Sociology and Director of the School of Social Welfare, University of Southern California
Editor, Journal of Applied Sociology

JESSE RAY MILLER
3474 UNIVERSITY AVENUE
LOS ANGELES
1925

First Edition, 1918
Second Edition, 1921
Third Edition, 1925

Printed in the United States
Press of Jesse Ray Miller
Los Angeles

DEDICATED TO
ALL SOCIAL SCIENCE STUDENTS
DESIRING TO THINK
INDEPENDENTLY

CONTENTS

PREFACE TO FIRST EDITION

This booklet has been prepared for use in social science classes, where students are asked to make special studies and are seeking to learn the rudiments of independent investigation. Simple methods are described first, and then more advanced technique is indicated.

PREFACE TO SECOND EDITION

An unexpected interest has been manifested in this booklet by many social science teachers in various parts of the United States. The need for a guide of this kind is increasingly evident.

This revision contains nearly all the material that appeared in the first edition, besides new illustrations of the main points of that treatise. Several types of papers that are often assigned in the social science field, in addition to the term paper, namely, the outline, the digest, the summary, the book review, the book critique, and the thesis, are discussed in this edition.

PREFACE TO THIRD EDITION

The outline of the second edition has been enlarged, new illustrative materials have been added, and additional details discussed; at several points a fuller treatment is given. Several social science teachers have made helpful suggestions which have been adopted. Special credit is due Miss Gretchen Tuthill for making the drawings used in the section on "Making Facts Graphic."

EMORY S. BOGARDUS

June 1, 1924

MAKING SOCIAL SCIENCE STUDIES

I

THE SCIENTIFIC ATTITUDE

One of the chief advantages of an education is a training in methods of thinking. That education is woefully incomplete which simply imparts facts to students. Its completeness is attained only when students learn to become independent thinkers and to find, test out, and generalize accurately upon facts for themselves. This phase of education is often shunned by students and neglected by the instructors. Some students feel helpless and bewildered when put on their own resources; they ask the easiest path which is via the lecture class; some instructors likewise choose the "impartation" method for a similar reason — it is much easier to "lecture facts" than to show students how to obtain the same facts for themselves and in so doing acquire more than facts, namely, a mastery of methods for deriving, criticising, and generalizing upon facts.

The popular attitude regarding study is to find facts to support something that one wants to prove. Childhood and adolescence are usually unwittingly trained in this popular attitude until it becomes

habitual, and hence difficult to change. The scientific attitude, on the other hand, starts with "no axes to grind," seeks data wherever they may be found, analyzes them, classifies the results and generalizes last of all and only then with great caution. The scientific attitude spares no pains, shirks no possible efforts, implies work and more work. The student, desiring to develop the scientific attitude, ordinarily must change his habits of thinking, and hence has a difficult subjective problem to master.

The scientific attitude undertakes any investigation with as few preconceived dogmas and prejudices as possible. One's biases may be of such long standing and may have been acquired so unconsciously that one is not aware of the most deep-seated of them. It is necessary, therefore, in order to attain the scientific attitude, to diagnose one's biases and to overcome their influence.

In undertaking any scientific study there are always at least a few assumptions or hypotheses to be made. These need to be understood and clearly stated. Any social problem, for example, is an outgrowth of maladjusted conditions, is a part of a social situation; to understand it implies certain assumptions regarding the social bases of human nature as well as the biological and psychological factors. An assumption or hypothesis is never to be mistaken for a final generalization or treated as such. Moreover, the scientific investigator must be willing at any time to sacrifice an assumption — whenever the facts discredit it.

A pitfall to be avoided is that of generalizing too quickly. It is not uncommon for many persons to generalize on the basis of one or two experiences or an acquaintance with a few limited facts. This practice represents a gross abuse of the inductive method. An illustration will suffice to show the need for scientific caution in generalizing. It is claimed that tooth extraction will relieve rheumatism and other ailments. In a number of cases relief has followed removal of teeth, but no scientific generalization can be made until it is known in how many cases tooth extraction has not brought relief from rheumatism. Lee K. Frankel of the Metropolitan Life Insurance Company puts the matter as follows:

> You are better acquainted than I with the cases that are repeatedly cited of rheumatism, eye trouble, neuritis, acute psychoses, and a miscellaneous assortment of aches and pains which have been favorably affected by the removal of the septic conditions of the teeth and largely by the extraction of the teeth themselves. What I should like to know as an inquiring layman with a scientific turn of mind is the number of cases occurring in the practice of the average dentist in which such favorable results have not followed tooth extraction. There is comparatively little data in the literature on this side of the subject from the purely scientific point of view. Has the time not come when we should know all sides of the case, when dentists shall be urged to report negative results as well as positive ones?[1]

[1] Address before Dental Society of the State of New York, May 11, 1923, on "Oral Sepsis," p. 4.

The scientific attitude includes the exploration method. The social science student begins his study by exploring for sources of data; he confers with as many interested persons as possible, finding out in detail those experiences that are related to the problem in hand. He proceeds both systematically and unsystematically as well, for the finest system (or theory) worked out *a priori* will probably miss some of the best sources of valuable materials.

When a question arises, the popular reaction is to want results quickly and to go straightway in one or two promising directions. The results are likely to be inadequate, for some of the best data, like some of the biggest trout are often to be found only in hidden pools. Both are discovered only by painstaking exploring. The scientific attitude is the exploration attitude, traversing unbeaten and uncharted regions as well as standard routes. However, it shuns aimlessness; it is active and persistent, mentally alert and always questioning.

II

MAKING PRELIMINARY STUDIES

As A BASIS for undertaking original investigations the student will do well to acquire skill in making analytical outlines or analyses, digests or abstracts, summaries, as well as book reviews. The *analytical outline* illustrates the simplest and the primary form of social science study. It is an analysis written out in logical order. It may be an analysis of some one else's printed work, or an analysis of one's own thinking.[1]

An instructor sometimes asks his students to make an outline of a chapter in a specific book or an article — of materials which deal specifically with the subject that the class is discussing. The aim of the instructor, usually, is to invite the attention of the students in an intensive way to a worthy presentation of an important subject, and to encourage them in doing an elemental but valuable social science exercise.

The student's best method of approach is first to read the assigned chapter with the purpose of finding out the fundamental principles which the author has presented. Then, the student seeks the main facts and arguments which the author has

[1] This latter phase will be discussed in Section VII.

given in support of each of the leading propositions, and arranges them in some kind of logical order. A false tendency is to resort to the use of topical words, because such a procedure is usually a cheap and wasteful way of meeting the requirements of a worthy assignment. If the student in preparing an outline will hold himself ordinarily to the use of entire sentences rather than to topical words he will be following the better method. In so doing, however, he will use his own sentences rather than those of the author, but if perchance this does not seem best then he will be careful to put quotation marks around the sentences or phrases that are copied. Quotation marks around every phrase or sentence that is taken from some one else is but a rule of simple honesty.

The preparation of a satisfactory outline may become an artistic or a routine task, dependent upon the student's attitude. It is sometimes possible to make an analysis of a chapter in such a way that the outline will be superior in arrangement to the author's treatment. A meritorious outline is not a scaffold or a skeleton. It is the inner content of a mental production made visible to the reader by the logical arrangement of incisive sentence-thoughts. It is not a hasty copying of the publisher's key sentences on the margin of the page, or even of the author's subheadings. It is the student's visualization of an author's thought. It is not merely a reproduction; it is a revelation.

The making of an outline of an excellent chapter or article does more than acquaint the student with good materials; it gives him a training which he can later use to its full extent in doing original investigation. He who analyzes well the written thought of another person is on the road to analyzing and projecting his own thinking along new and constructive lines.

A *digest,* or its equivalent, an *abstract,* is a condensed statement, by one person of another's ideas or treatment of a subject in the words so far as possible of the one who is making the digest. Digests are usually made of articles published in journals or of chapters in a book. The purpose is to give in a brief compass the gist of the specific document.

There are serious difficulties in making a first class digest; two will be mentioned here. (1) An article or chapter that is well written already appears in a condensed form. The author presumably has resorted to no circumlocutions; he has not been wordy; he has used as few well-chosen words as possible in correctly expressing his thought. Therefore, how can the maker of a digest, for example, put the author's ideas into one-tenth, or less, of the original number of carefully selected words without doing violence to those ideas? In fact, it is almost impossible to make a satisfactory digest of a carefully written article, for something vital is almost certain to be omitted.

However, very few articles are well written, and

hence the student will usually have plenty of opportunities in making digests. Of course, even a document in which the author uses terse, condensed sentences usually contains ideas and conclusions that are of greater importance than the rest of the paper. To give proper balance in a digest, however, requires special skill which ordinarily may be expected to develop with practice.[2]

(2) Another difficulty in preparing a digest is found in the customary rule of writing it as far as possible in the language of the author of the article. The constant temptation is to resort to one's own words in writing a digest, or worse still, to alternate between the language of the author and one's own words. A special merit in preparing a digest of this type is the discipline which is afforded in being wholly "objective" in one's thinking, that is, in keeping one's own personal reflections out of the digest.[3] As in the case of the outline of an article, the digest is strictly objective, but it is far more difficult for the student to keep a digest objective than an outline, because in the digest he has so much greater freedom in choice of materials.

[2] The student may receive considerable help by studying the digests and abstracts that are published in the leading social science journals. While these are not always models, being made oftentimes by amateurs, they will be helpful if treated comparatively.

[3] Of course a few, at least, of one's fundamental attitudes will always appear; they will be disclosed by what one chooses to put into and to leave out of the digest. A simple check on this observation may be had if two persons will make a digest of several articles and then compare the materials that have been put into the digests.

To cut down and to boil down an author's treatment of a subject so as to present the chief propositions clearly and also not to misrepresent or inadequately present the author's contentions is an undertaking that is both a science and an art. It is a training that will help the student in describing original investigations and in preparing original papers to guard himself against verboseness, and to be succinct and compact. The main difficulties in writing digests can be overcome by patient, repeated efforts.

A *summary* is similar to a digest except that it is written in the student's own words. To summarize an article or a chapter of a book well is a skillful task because it involves stating, condensing, and paraphrasing the ideas of another person in the terms of one's own thought and vocabulary.

It is profitable to write first a digest, and then a summary of the same article in order to gain experience in treating the ideas of another, first in his language, and then in one's own language. Both exercises involve the processes of selection and condensation, but the summary involves the additional exercise of paraphrasing, which in itself affords a valuable training in making the choice of the right words, which creates versatility in thinking, and which enlarges one's vocabulary.

III

REVIEWING SOCIAL SCIENCE BOOKS

The reviewing of a book is a more complicated process than the elementary studies so far considered. It includes several types of mental activity.

1. Of course the first thing to do is to read the book carefully, giving special attention to the preface, the table of contents, the introduction (if there be one), as well as to the main substance of the book. The preface is significant because in it the author usually indicates his underlying attitudes, his purposes, and other personal items. The introduction usually indicates the main angles of approach, the historical and logical assumptions, and other background materials. The table of contents reveals the method of analysis; it is also an orientation chart for the reader and reviewer.

In reading the substance of a book the reviewer may underscore the outstanding sentences, providing the copy of the book is his own. If the book belongs to a library or a friend light pencil marks or crosses may be made on the margins of the page opposite the important ideas. These pencil notes will be carefully erased before the book is returned to the library or to its private owner.

2. The underscored or marked sentences may then be read and analyzed with reference to specific questions, such as:

(1) What are the main propositions of the book?
(2) What are the chief subsidiary propositions?
(3) What has been the purpose of the author in writing the book?
(4) How far has the author succeeded in solving the problem or in meeting the task which he has set himself?
(5) How far does the book fulfil the expectations which its title arouses?
(6) Is the author's method chiefly descriptive or analytical?
(7) How far is the author's style inductive and how far deductive and dogmatic?
(8) What contributions in the way of new ideas are made?
(9) What contributions to method of social research are made?
(10) How do the author's ideas compare or contrast with the reviewer's experiences and observations?

3. As many important facts as possible should be found out about the author. *Who's Who in America,* or similar works published in the author's country, will be consulted for information about the author's education, his published works, and the po-

sitions he has held. The last mentioned item is very significant because it denotes the types of personal experiences and of social contacts he has had. The title page, the preface, and the introduction to the book often disclose important facts about the author's mental biography.

4. A book review will give the full title of the book, together with the subtitle (if there is one). The name of the publisher, the date of publication, and the number of editions or revisions if there have been more than one, may be given (with exactness). The number of pages, the arrangement into parts, the nature of the illustrations, charts, graphs, if there are such, are significant items.

5. The reviewer may compare the specific book with other published materials by the same author, if there are such; noting particularly how the book under review relates to the author's general trend of thought and what new tendencies it marks. The reviewer may also compare the specific volume with at least one other book in the same social science field. If he can compare the volume with selected leading books on the same subject, he will be amply repaid and besides will be performing a useful service.

By consulting any published reviews of the given book that may be available, the reviewer will be able to compare his own reactions to the book with

the comments of other reviewers. A great danger lurks here, namely, the temptation to rely on the reviews for one's own estimate of the book. If yielded to, this temptation becomes fatal to original thinking and independent judgment. For his own sake, therefore, the student will make up his estimate before consulting other reviews. *The Book Review Digest* will usually give digests of most books of importance that have been reviewed. Journals in the social science field[1] and prominent newspapers and many of the popular journals have book review sections.[2] In the scientific publications, even the social science journals, the reviewers often have strong biases, and unless the student knows of these he is likely to be led astray; hence the need to be sharply on one's guard. In the book review sections of the newspapers the reviewers may possess keen literary ability, but be relatively unversed in the latest social science developments. Thus, their reviews will be doubly subjected to scrutiny before being accepted.

6. The reviewer needs to determine his general estimate of the book. Questions such as the following will help in forming this estimate:

[1] Such as the *American Journal of Sociology*, the *Economic Review*, the *Journal of Abnormal Psychology and Social Psychology*, the *Educational Review*, the *Revue Internationale de Sociologie*, the *Journal of Applied Sociology*.

[2] Such as the *Boston Transcript*, *New York Tribune*, the *Literary Digest*, and the *Bookman*.

(1) What are the book's strongest characteristics?
(2) Its weakest traits?
(3) Wherein does its contribution to knowledge lie?
(4) Will it likely become a standard work? Why?

7. The final preparation and presentation of a book review calls for careful thought. The reviewer needs to protect himself against following the author too slavishly. He will beware of reviewing the book chapter by chapter in an arithmetical routine. Perhaps he may group the chapters according to his own judgment, leaving out any references to chapters of lesser significance. It is also his option to present the material in an order entirely different from that pursued by the author.

He will not attempt to present all the valuable ideas; he will be obliged continually to select, sift, and discard. In fact, if the book is of unusual merit it is his business to select ideas which will arouse the reader's or listener's interest in the book and stimulate him to read it for himself. The reviewer may state what the author does, but not give all the findings; what themes are handled but not all the conclusions — thus leaving the reader or listener with an urgent desire to study the book personally. If the book is a manual, an encyclopedia, or a volume of source materials, the review may indicate

what types of questions the book will answer, without giving more than a few of the answers.

The reviewer may find it wise to give samples of the contents, but these must be short. He will rarely quote more than two or three sentences at a time, for these may easily prove tiresome to the reader or listener. It is often better to paraphrase and to give digests.

Throughout a book review the student will express his own individuality without allowing it to become obtrusive. He will fall neither into the trap of prestige worshipping, nor into the pit of chronic "knocking." His work will be done best if he remains objective to, and master of, the book. In making criticisms, the student reviewer will be cautious, because frequently he is not as well informed on the topic under criticism as the author of the book. All the training and skill that the reviewer has acquired in making analytical outlines, digests, and summaries may be used to good advantage.

In preparing a book review it is stimulating if one can give it orally to a class, or seminar, or to a group of friends. The oral presentation with the criticisms that may follow are normally of unusual help; they suggest to the reviewer subtle points that he has overlooked; they aid him in making a better balanced review than he would otherwise have achieved.

In preparing to give an oral book review, the best method is perhaps that of putting the mate-

rials one wishes to use in the form of notes upon cards or slips of paper of convenient size. It is a mistake to "memorize" a review; energy is wasted; and opportunities for freedom in presentation are cut off. To write out a review and read it is also as a rule a poor policy for a student in training; this represents unnecessary work and does not give one opportunity "to think on his feet."

The beginner will find it helpful to rehearse his notes privately. It is one thing to reduce a set of ideas to notes, but it is a superior process for the student to have the notes so well in hand that he speaks clearly, directly, and without hesitation to his listeners. In using notes, the student will know them so well and will be so "full of his subject" that he will talk freely to his listeners rather than be obliged to read the notes or seem to talk to his notes and neglect his listeners. Such an oral exercise gives the reviewer a sense of values and of proportion that can be secured in no other way. His work is not that of a cataloguer of ideas; he is a judge and a critic; he analyzes and compares; he even synthesizes and compares the primary comparisons.

The *book critique,* as the name implies, is devoted to a series of favorable and unfavorable judgments, accompanied by the reasons for them. A critique includes all that a review does except that any extended statement of the main and subsidiary propositions, which holds a major place in a review, is subordinated in a critique. A mere summary of

the book's contents is likewise subordinated. Instead of descriptive reproduction, the critical ability of the student is substituted, and is brought to bear upon the book from the very first.

The writer of a book critique usually intersperses a number of his own ideas upon the subject with which the book deals, making them stand out in support of or in contrast with the ideas of the author. Supplementary materials and comments are freely introduced. A genuine critique is possible only on the part of those who have considerable knowledge of the given subject and who have some maturity of judgment. It is a high type of mental exercise which can be attained to a worth-while degree through persistence.

The psychology of making critiques includes the tendency to be hypercritical, to be harsh and at times ruthless, to neglect the author's point of view and purposes, to forget to express a helpful attitude. In hunting for errors and weak spots, it is also necessary to maintain the habit of recognizing the worth while. Whatever else is done, let the author be treated fairly, for as a rule, he is not present to defend himself.

IV

CHOOSING TOPICS FOR STUDY

THE ASSIGNMENTS of topics to be studied and reported upon are not made by teachers as freshmen and sophomores sometimes declare, for the purpose of getting the students to work, to give them unpleasant tasks to perform, or for conventional reasons, but to afford the student an opportunity to develop his thinking ability, to express his individuality, to arouse his originality. A second and equally important aim is to help the student acquire scientific methods in making social studies.

Generally the instructor will give the student some leeway in choosing a theme for investigation. In response to the recurring request of students: "You suggest a topic for me to study," the instructor ordinarily will hesitate. A student who is approaching maturity — even though he has had only an introduction of a few weeks to social science — must have given a little thought from time to time to a few social issues, at least. If the instructor chooses a topic for a student with whom he holds only a brief, general acquaintance, he may select one outside the student's range of experience and background. If the student, after some thought and exploration, makes the choice, carefully guarding

himself against selecting a topic that appeals merely to his passing fancy, he will find a problem in connection with which he is already oriented. Furthermore, he will have relied upon and exercised his own mental processes rather than have leaned upon the aid of another person; he will have explored about and accepted a problem germane to this exploration rather than one picked out of the thin air. The best topic as a rule is one upon which the student already possesses a thorough background and which he investigates at close range.

The topic is the doorway to the investigation itself. It may even prove the forerunner of a thesis for an advanced degree. At any rate its study will be useful in countless unexpected ways in later life. Its study will utilize all the training that one has had in making analytical outlines, abstracts, reviews, critiques, and in addition will afford many new opportunities for development.

The student, hence, will search his own experiences for appropriate themes, with the aid of such hints as he may gather for himself from the class discussions, the lectures in the specific course of study, the text-book and other related books. By re-examining these, many problems will arise which will challenge the student's attention, intellectual curiosity, and fundamental urges. If a few of these are caught out of the nebulous nets of exploration and put into tangible form, the student will have taken the first step in making a social science study.

Then, the instructor will need to be consulted. He will make suggestions, indicating the possibilities and importance of the proposed themes; he will give special emphases, enabling the student to make his choice wisely.

There are two main classes of topics for social science study: (1) library topics, and (2) field topics. They afford endless possibilities for training in original investigation.

1. Library topics range from those of the simplest order to the most abstract and complex types. For a beginner the simpler form of library topic is logical. The material is near at hand and easy to obtain. The best data on a specific theme are usually to be found in a relatively few books and magazines. The time of the student is conserved, for the library contains the materials with which to work. Inasmuch as the student must be acquainted with the published studies and the background materials when he undertakes the most advanced subjects for investigation, the library training which he secures as a beginner will all be of immense value to him as he advances up the incline of social science investigation. Because of the technique that he may acquire, it often turns out that the elementary library topic leads to advanced research.

In choosing a library theme the amateur is likely to select one of too general and complex a nature. Consequently, the materials will be illimitable and

bewildering; the student will be swamped. He will become discouraged, lose himself in the mass of details, or merely skim the surface and make a superficial study. "Child welfare," for example, is a theme which is too extensive. "Child Welfare in the United States" is also too far-reaching, for to treat it thoroughly would require a volume of several hundred pages. Such comprehensive themes need to be modified and greatly narrowed in scope, for the main object of independent social science study is not merely to scratch over a large surface and feel that one has "accomplished wonders," but rather to select a favorable spot and bore deep, and keep on boring. Among illustrations of practicable topics for elementary social science studies, the following are illustrative:

(1) The Effects of Child Labor.
(2) The Causes of Juvenile Delinquency.
(3) The Advantages of Rural Life.
(4) Labor Conditions in the Steel Industry in the United States.
(5) The Cooperative Movement in Denmark since 1910.
(6) Social Studies in the Junior High School.

Ultimately the student may attempt advanced library topics. These require a thorough study of the immediate and the fundamental literature, and an ability to do abstract thinking. Such studies

are usually postgraduate in character. They involve taking the ideas of other thinkers and investigators and pointing out possible fallacies in them. They lead to the origination of new concepts, assumptions, and principles or laws of social life. They require the highest type of reflective thought. The findings may occasionally lead to improvements in social organization or the social processes. They often produce results that are worthy of publication in one of the social science journals.

2. Field work topics call for a certain maturity of judgment, as well as poise in meeting persons of maturity. Employers and employees, landlords and tenants, natives and aliens must be met and disarmed of suspicion, and given favorable impressions, or the inquiry will fail. A large range of secondary but vital issues must often be met with dispatch. The persons who are being conferred with are often offended by a single naïve question or remark by the well-intentioned but unsophisticated inquirer; as a result, the investigation comes to naught and an unwholesome impression is given of social science.

Field topics will be chosen only by students who are somewhat versatile, who have plenty of time and patience, who are or have been connected with the proposed field of study, or who have friends who have or have had such connections. A person cannot obtain data from a perfect stranger; he may be

successful when he is an intimate friend or relative of the person or persons from whom he desires "inside information." It is sometimes necessary to work through intimate friends of a person or persons who possess the pertinent information. A letter of introduction will also serve as a means of obtaining facts. A first-hand personal interview is the best source of securing vital materials.

Of course figures and facts about purely objective matters, such as the number of houses in a given section of the city, can be obtained without the use of personal methods. But if one desires to find out why a race riot took place it is necessary to go behind the bare statement that "one person attacked another, and a general riot ensued." It is necessary to seek out social attitudes, and personal experiences which lie back of overt conflicts; to penetrate the most subjective phases of life. The personal interview, thus, becomes the main tool of social investigation.

The field topic, like the library theme, may assume the advanced proportions of an abstract problem. When it includes a study of social attitudes, public opinion, and personal experiences regarding any social, economic, educational, or political problem or conflict, the student will need to be well trained in research methods, to possess analytical ability and the power of sustained reasoning.

The advanced field topic may be most important of all in social science, for it involves making

the most subjective materials objective and understandable. It deals primarily with personal experiences — the main source of knowledge in social science. It is the only sound basis for abstract reasoning in social science, and will remain so, until the social sciences develop comprehensive bodies of scientific knowledge which they do not now possess.

V

MAKING A BIBLIOGRAPHY

THE BIBLIOGRAPHY for a given topic is as accurate and as complete a list as possible of all the reliable materials that have been published on that topic. It reveals at a glance whether much or little attention has been given to the subject, discloses those who have been conducting investigations, and serves as a guide to all that has been discovered about the given theme. Moreover, a bibliography is an index to the scholarship of the one making it.

In undertaking any piece of social research it is necessary to know what work has already been done on the specific subject and what is the value of each item of research. Therefore, a carefully prepared bibliography is one of the first essentials.

The use of cards or slips of paper is advisable in making bibliographies. Cards are more expensive and bulkier than slips of paper, and if made of paper of good fiber they will serve all necessary purposes well. Slips or cards, moreover, are convenient; they can be indexed and arranged alphabetically without difficulty. They can be added to continually without disarranging previously taken bibliographic notes.

The making of a bibliography is a two-fold process. In the first place there is the mere collecting of titles, authors' names, publishers' names, dates of publication; secondly, there is the actual examination of the references, and the judging them, rejecting those that have little or no value. In this latter work it is wise to take notes wherever helpful suggestions are found, thus combining the evaluating and the note-taking processes in one, and saving another examination of the references later. Hence, a duplex system is needed. In addition to the slips of paper, 3x5 or 4x6 inches, a loose-leaf note book carrying paper preferably of letter size, that is, 8½x11 inches, is desirable. This large size is advantageous because one often collects other material such as business letters, charts and pictures from magazines and journals, extensive clippings, and so on, all of which can be better adjusted to folders 8½x11 inches than to a smaller compass. The student frequently wishes to make extensive digests, to copy long excerpts, to keep clippings in pasted form, and hence the greater convenience of using paper 8½x11 inches. At the same time this size is uniform with the paper upon which the final draft of the study will be written or typed. By planning to take notes "as one goes along" in making a bibliography, it is possible to economize considerably on time and energy. For the taking of brief notes, the 3x5 or 4x6 slips will suffice; but for voluminous notes, 8½x11 paper will be needed.

As the slips are too small for extensive notes, so the letter size paper is too large and hence wasteful when single bibliographic notes are being made or when isolated facts are being noted. But in the long run the duplex system, or some variation of it, is likely to be more satisfactory than either small slips or the 8½x11 paper alone. Indexes, which may be hand made, for both the slips and the letter size paper will be useful in keeping the bibliographic references and the main body of data classified according to some plan of organization that will develop as the study proceeds. These two sets of indexes of course parallel one another and hence are supplementary to each other.

Some uniform system for making bibliographic references is obviously essential. References to books and documents, as distinguished from articles in journals, may be made in the following order: Author's name, his initials, title of book exactly stated and underscored,[1] publisher's name, the date of publication,[2] the number of the chapter or of the pages of the related materials.

If the reference is to an article, the order may be the following: Author's name, his initials, title of

[1] The purpose of the underscoring is to indicate that the given words would be italicized if they were to appear in print.

[2] Sometimes the place of publication is given as a substitute for the name of the publisher, but this substitution is not satisfactory. Sometimes the name of the publisher and the place of publication are both given in order, but this is unnecessary except in the case of the lesser known publishing houses.

article stated exactly and in quotation marks, name of magazine,[3] underscored, volume of the journal, and the pages of the article. If the issue of the journal to which the reference is made is current and hence unbound, the bibliographic citation may be given by date rather than by volume. References to journals one or two years old may give both the volume, number and the date. The titles of pamphlets and bulletins may be treated as articles rather than as books, that is, set off by quotation marks rather than underscored.

The student cannot be too careful in regard to securing accuracy and uniformity in punctuation. The student's attitude toward such minor matters as commas is often indicative of the quality of all his work. "Attention to details" is a necessary slogan for any student in making a social science study. The following samples of bibliographic references will serve as guides:

Blackmar, F. W., "Leadership in Social Reform," *Amer. Jour. of Sociology,* XVI:626-33.

Butler, F. C., "Community Organization," bul., 1919, No. 76, Dept. of the Interior, Washington, D. C.

Ely, R. T., *Outlines of Economics,* Macmillan, 1917, Chs. III, IV.

[3] Names of magazines and journals may be abbreviated according to some standard form, as found in the bibliographies appearing in books written by scholarly persons in the social science field.

Hauser, Henri, "De l'americanisme et de ses varietes," *Revue internationale de sociologie,* Janv.-Fevrier, 1924, pp. 1-6.

Leiserson, W. M., *Adjusting Immigrant and Industry,* Harper & Bros., 1924.

McCall, W. A., *How to Measure in Education,* Macmillan, 1912, Chs. I, IV-XI.

By keeping the cards in alphabetical order the final bibliography can be made with a minimum of effort. The final bibliography, like the cards, should be arranged alphabetically. The bibliography bears on its face the tell-tale degree to which the student has been thorough, or careless. A successfully-made bibliography requires patient, skillful effort. It is a worth while achievement to bring together the leading references to everything of value that has appeared in print on the specific topic. It gives the student a dependable camping ground from which to move in making a social research advance.

The first place in which to search for bibliographic items is in the card catalogues of libraries — college, city, special; these will give access to books and documents. The second storehouse that is available is the series of volumes known as the *Reader's Guide;* in these are the titles of the main articles on leading subjects that have been published in recent years. For articles that were published several years ago *Poole's Index* will give

the exact references. A librarian will explain to the uninitiated the use of these convenient reference series.

Often the inquirer will find himself swamped by the large number of references to articles upon his topic in the *Reader's Guide;* but he can soon acquire facility in detecting the metal-laden ores. He will center attention upon those articles printed in the standard social science journals, such as *School and Society,* the *Political Science Quarterly,* the *International Journal of Ethics,* the *American Historical Review,* the *Economic Journal,* the *Journal of Religion,* the *Journal of Social Forces,* and so forth. The student can obtain the rating of a journal by inquiring of his instructor, and his own experience in the use of journals will develop his ability to judge values.

Judicious use may be made of the magazines,[4] as distinguished from the social science journals. The magazines are usually semi-popular and hence must be used with scientific caution.

Articles of one or two pages in length only, articles of any length in the newspapers and the popular weeklies, unsigned articles and editorials need to be treated with special caution and scrutiny. Occasionally, however, a brief, unsigned article or editorial of a page in length will contain a new idea of first magnitude; length is not necessarily a criterion of quality.

[4] For example, the *North American Review,* the *World's Work,* the *Outlook,* the *Independent,* the *New Republic.*

As the student proceeds in making reading acquaintances, he will note and examine articles by the standard authorities in the various social science fields. For example, in sociology proper, articles bearing the signatures of Giddings, Small, Cooley, Ross, Howard, Blackmar, Dealey, Ellwood, Hayes, Park, and others of similar high standing, will command immediate attention. Other names will come to signify peculiar biases or unreliability. Through experience the student learns to evaluate books and articles, even of authorities. Moreover, he will not be dazzled by a great name; neither will he underrate the important work of unknown authors. He will learn not to accept new ideas uncritically or to scorn the old impatiently.

VI

GATHERING DATA

GATHERING data for a library topic is much easier as a rule than for a field topic. In undertaking either, definite methods of procedure are necessary. When a student simply uses a notebook, writing down notes as he comes upon valuable materials, he is likely to waste time and energy; he quickly becomes unable to find any particular notes without hunting for them at considerable length. By adopting a note-taking system, such as using slips or sheets of paper that can be easily filed according to the main subdivisions of the topic economy will be attained.

Taking notes is a process in which the student will be careful to give proper credit to the respective authors. In so doing quotation marks will be put around all quoted sentences or ideas, immediately followed by a bibliographic reference, giving the author's name, the title of the book, the publisher, the date of publication, and the page or pages of the reference. Where the exact words are not quoted, but summarized a bibliographic note again will be made and whenever the borrowed idea is used. It is very important always to give credit to authors whenever their ideas are made use of either indirectly or directly.

In perusing materials for helpful ideas a useful habit to develop is to allow the author's ideas to stimulate one's own thinking so that perchance the latter may do some original thinking. It is unfortunate to develop the habit merely of copying another's ideas. By reading slowly and thoughtfully, the author's ideas may stimulate the student in such a way that new ideas will arise in the student's mind. From time to time it is worth while for the student to discuss his notes or his own ideas with interested persons, for such discussion may be provocative of other and still better ideas.

Reflection is also essential. Time for reflective thought is a necessity. By thinking over one's ideas together with those more directly secured from reading and conversation, one may *think new ideas*. This is the most original and valuable method of "gathering data."

The *schedule* represents a formal method for securing certain facts that are already in objective form and easily discernible. The schedule has the advantages and weaknesses of standardization. Usually it contains a list of terms which represent questions to which the student wishes to secure answers. These terms are ordinarily arranged upon a light-weight cardboard of convenient size for carrying in a notebook — with spaces in which answers can be written. As a rule, the schedule is not produced during an interview, for such a procedure will create prejudice and mental resistance. Because of

lack of space, an illustration of only the simplest kind of schedule will be given here.

Schedule on Immigrants in Night Schools

Sex_____ Race_____ Age_____ Occupation_____
Education in home country_____
Why migrate to United States_____
Years in U. S._____ Years in Los Angeles_____
First papers_____ Second papers_____ Political party____
Why like U. S._____
Why disappointed in U. S._____
Idea of democracy_____
How attracted to night school_____
Why attending night school_____
How may others be interested in night school?_____
How may night school be improved?_____

The ordinary questionnaire is often a useful tool in obtaining information from a distance. Usually it differs from the schedule in that it is filled out by the person who is being questioned; the schedule is filled out by the investigator himself. Hence, the questionnaire is often simpler and more clearly worded than the schedule. The questions are phrased so as to give one meaning only. As a rule the questions are few in number. Otherwise, the person who is questioned will be tempted to postpone or to neglect entirely the answering of the questions. Sometimes the questions are framed so as to call for either an affirmative or negative answer with any explanations that may be added.

The questions cannot require too subjective answers or be too "inquisitive."

Whatever can be done to make the task of the questionee as easy as possible will not be neglected. One of the difficulties is that of securing a large percentage of replies. It is well to enclose a stamped, self-addressed envelope with each questionnaire that is mailed out.

Questionnaire on the Teaching of Social Problems Courses in High Schools

1. Is a course in social problems given in your high school?
2. If so, what text is used?
3. In what part of the high school course is the subject taught?
4. Is it required or elective?
5. How far has it been a success?
6. Are you favorable to such subjects in the high school curriculum?

In this questionnaire as in the sample schedule that has been given the student will observe that most of the data that will be secured are likely to be more or less formal and statistical. Both the schedule and the usual questionnaire method need to be supplemented by the personal-experience method in bringing hidden materials to the surface. Herewith is given a life history questionnaire, prepared by Professor Robert E. Park of the Univer-

sity of Chicago in connection with, and adjusted to the needs of, a race relations survey of the Pacific Coast of the United States.[1]

THE LIFE HISTORY

Life histories of immigrants are valuable in so far as they give us insight into the processes of the "melting pot." We seek to learn from these documents:

(1) What the immigrant brings to this country as a heritage from the mother country. What are his hopes, ambitions, and his illusions in regard to life in America?

(2) What does he bring in the way of equipment, education, technical training, industrial habits, etc.? How much of his heritage, his language, for example, and his tradition are a handicap to him? How far is he able to overcome these handicaps? How does he actually accommodate himself to American life?

(3) What about the second generation, the children? How far do they seek to preserve the language, traditions, and habits of thought of the older generation? How far do they succeed? What is the effect upon them of the inevitable break between the customs of their parents and of the Americans among whom they live?

These are the questions to which we have in the past found, and must still seek, answers in the stories which the immigrants tell of their own intimate personal experiences in this country.

The following inquiries are intended to be suggestive, merely. What is wanted is a narrative, concise, vivid, personal, with all the inflections and accents of the individual man or woman — and, so far as possible, in the first person.

[1] Published by permission of Dr. Park.

I. Early Life

1. What has been your life, i. e., your place of residence, occupation, and ambitions before coming to America?
2. When did you first hear of America and what were your early notions and interests in regard to it?
3. What are the stories, legends, and general conceptions of America current in the part of the country whence you came?
4. Why did you choose to come to California rather than Hawaii, Australia, or Mexico?

II. First Impressions of America

1. What was most interesting about America as you saw it for the first time?
2. What was most difficult to comprehend in your new experiences here?
3. What were your first and greatest difficulties in finding your way about and getting adjusted to America?
4. Did your own fellow countrymen look strange or disappointing out here, or did you feel immediately at home with them?
5. What *shocked* you most about America? What about the freedom of young women? The candor with which Americans discuss love affairs and sentimental matters in their daily conversation, in their newspapers, bill-boards, and movies?
6. How far have your own notions about the freedom of women, the independence of children, etc., changed as a result of life in America?
7. How about the younger generation? Does the "freedom" of and "independence" of America bring them into conflict with their parents? Does it unfit them for life in the old country?
8. How have you or your people sought to meet the problem of the second generation?

III. Social Contacts

1. How far have you been able to master the spoken and written language in America?
2. What newspapers, magazines, or books do you read in English? What book have you read that interests you most?
3. What acquaintances have you made among Americans and how intimate have your relations with Americans been?
4. To what organizations, church, social, or welfare organizations, if any, do you belong which bring you in touch with Americans?
5. What, if anything, are your own people, independently or in association with others, doing to improve the condition of your neighborhood or your community?
6. How have the land laws affected your personal and family life? Have they tended to make you nomadic, unsettled, and restless? How do you propose to meet this difficulty?
7. Do your people have more family difficulties, divorces, and desertions in this country than in the old? If so, how do you explain that fact?

IV. Conflicts and Accommodations

1. Have you had difficulties in finding a suitable home? Did your efforts to find a suitable home bring you into conflict with your neighbors? How did you manage to make peace and on what terms?
2. Has anything occurred in your experience to make you wish to avoid Americans; keep at a distance from them; or conceal your feelings in regard to them?
3. If you had the one chance of your lifetime to express what you feel deepest about America and Americans, what would you say?

4. In what way do Americans misunderstand and misjudge foreign peoples and especially your own?
5. Are you planning to return finally to your native country or to send your children back? If not, why?

V. Philosophy of Life

1. How far have you realized the ambitions with which you came to America?
2. What illusions have you had in regard to life in America and how far have you become reconciled to life here as it is?
3. Are you an internationalist and a cosmopolitan? If so, how do you think such an ideal is being, and is likely to be, realized?
4. What is or will be your ambitions for your children?
5. Are you in favor of intermarriage now or ultimately? If that does not take place, how do you think the race problem is likely to be solved?

The most concrete source of social data is found in *personal experiences*. To obtain these one must consult or interview as many persons as possible who have had anything to do with the given problem or question that is being studied. This is field work in the best sense of the term; this is also case work in its most significant phase; moreover, it is the basis of all genuine social research.

Before undertaking field work the student will ground himself thoroughly by reading as much as possible of the more important materials that have been printed on his topic and on its immediate backgrounds. By learning about what other investigators in his particular field have done he will

avoid unnecessary mistakes and will be better able to attack the new problem.

Case study is the method of examining specifically and in detail a given social situation; it penetrates the interesting personal experiences of all the individuals involved; and out of these experiences, it arrives at an understanding of the various stimuli and responses that have functioned. In this way it diagnoses maladjustments and is enabled to make or suggest the proper re-alignments of personal relations.

In gathering materials in a field study, one of the first things to do is to *explore,* that is, to find out who have had interesting experiences, and who are interested in giving assistance. It is necessary to trek about, and get "leads." One cannot plan out a study satisfactorily until he gets into it, and hence the necessity for a certain amount of exploration as distinguished from definite planning. Moreover, as the main lines of study become evident, it is still necessary to keep up the exploration phase. Through exploration one often stumbles upon new and unanticipated materials, even when he has thought that he had uncovered everything.

The next problem is that of interviewing people who have played any kind of a rôle in the given situation. The first aim is to obtain *personal experiences.* These are the main storehouses of explanatory information; these tell why people have the attitudes they do, why they hold certain opinions,

why they act in given ways. This sort of data penetrates to the very heart of all knowledge.

The best personal-experience data in any situation are very difficult to obtain, because ordinarily they are passed on only from intimate to intimate or to close friends. Therefore the ordinary student interviewer is likely to obtain only superficial data, such as that relating to "the number of houses," "the number of marriages, births, deaths," "the shifting prices of foodstuffs," and similar materials that lend themselves to statistical treatment such as an untrained person would readily be capable of administering, but that do not offer deep-seated explanations of how and why human beings act and feel. They do not touch the deeper social psychology phases of the problem.

Personal experience is like language — its chief significance is to be found in its *meanings*. The most elemental form of language cannot be "localized in the brain" or "associated with the particular movements of the 'speech organs' that are required to produce it," but it must be "further associated with some element or group of elements of experience."

This "element" of experience is the content or "meanings" of the linguistic unit; the associated auditory, motor, and other cerebral processes that lie immediately back of the act of speaking and the act of hearing speech are merely a complicated symbol of or signal for these "meanings."[2]

[2] Edward Sapir, *Language*, Harcourt, Brace & Company, p. 9.

It is "meanings" that are most worth while; not in the numbers and forms of life but in the *experiences* of persons are the *primary sources* of knowledge. Numbers of persons, or censuses and surveys are of less significance than personal experiences. The social sciences have tried common sense methods; have counted people, their actions, their motions; have worked out statistical technique, but none of these have gone far enough. After personal experiences have been fully analyzed in terms of meanings, attitudes, and values, then statistical methods will be of great help.

To search for and through personal experiences requires skill. In fact it is difficult to get personal experiences stated accurately, and yet in them are the main data of social research. Many persons refuse to describe their experiences; others will deliberately color them; and still others will unintentionally exaggerate certain factors to the exclusion of other elements. Hence, the investigator requires tact, sympathy, alertness, as well as ability to cross examine the witnesses at the bar of social research. It is only when human experiences are brought out of mental closets, "memory chests," and made objective, are analyzed, and treated scientifically that we can know the truth that will make us free.

The interview may be conducted best through *intimates*. If one has no close acquaintance who has had experience in a given problem, then perhaps he knows someone who does, and can work

through this person. It may be necessary to use a letter of introduction which however does not give the person interviewed an attitude of perfect freedom toward the interviewer. However, it may be used as a means of entrance into the interviewee's friendship.

In interviewing it is necessary to observe the interviewee's habits of personal reserve and mental resistances. In other words, all unnecessary antagonizing of the interviewee will be carefully guarded against. Too pertinent questions often bring less results than less direct ones. To get a person to narrate his experiences regarding the conflict phase of a problem is the main achievement of a successful interviewer. Note-taking in the presence of the interviewee at once arouses his defense mechanisms and blocks his freedom in narrating. No person wishes to tell what he has assumed (often erroneously) were his private affairs to a "reporter," to a self-conscious, bold, or awkward novice, or to one who acts strange or peculiar in any way. Hence, special skill in analysis and retentiveness is required of the interviewer. The more nearly the interviewer can put himself in the position of interviewee, the more successful he will be.

The best source materials for social science study are the full and free written statements of persons who are narrating their significant experiences. One of the finest sources of materials for social research is found in *letters*. Sometimes, a letter from

a person to a close friend is an excellent document. In it the writer has "poured out his soul;" the form is narrative of what happened; reactions, feelings, opinions crowd the pen for expression. One says "what he thinks." He is not subject to the reservations which he feels when he is being interviewed. He is under no special restraint. Logical forms do not hamper him. He is not obliged to fit his thought into the firstlies, secondlies, and so forth, of a sermon; or into any other standardized form. In a letter, a person may tell a great deal about himself which ordinary statistical tables do not reveal.

It may be objected that personal experiences are too "sacred" to be reported, or that they reflect seriously upon the moral character, and hence should not be sought out. It may be replied that men give their life-blood for scientific purposes, and hence, why should not human experiences likewise be dedicated to scientific purposes? It is from human experiences that the only true knowledge about the nature of society and personalities comes. Why should not these experiences be made available to social research, providing the persons giving them are adequately protected from criticism because of misdeeds they may have committed.

It is this method that Thomas and Znaniecki in *The Polish Peasant in Europe and America,*[3] Park and Miller in *Old World Traits Transplanted,*[4]

[3] University of Chicago Press, 1918

[4] Harper & Bros., 1921

Park in *The Immigrant Press and its Control,*[5] and Thomas in *The Unadjusted Girl,*[6] have used to excellent advantage. In studies such as these the foreign language newspapers have been combed for published letters, and gold mines of personal experiences have been found. Thus, newspapers and similar documents often contain splendid materials for social research.

How is one to know when the materials he has secured are *representative,* and hence such that he can draw general conclusions from them? This question is a statistical one, and is difficult to answer, for the social research method herein discussed is opposite in certain particulars to the statistical approach. It bores deep here and there, as in the case of an oil well, rather than scratches the surface of a large territory with a harrow. It looks for *differences,* and attempts to make these *understandable* to all parties involved. By making differences understandable, people ordinarily will learn to accommodate themselves to one another, and social problems thus may find solution.

The personal experience method of gathering data assumes a certain common and universal core of human experiences which are understood the world around. The child's joy over a new toy, the mother's enjoyment in holding an infant in her arms, the anguish of parents over the death of a son,

[5] Harper & Bros., 1922

[6] Little, Brown & Company, 1923

the anger of a person who has been exploited — all these are easily understood; they are a part of the common universal core of human experience. Since among all peoples also some form of communication, of family life, of group control or government, of religious behavior, of artistic expression, and so on, are found, there are countless similarities in human behavior.

The personal experience method of securing social data does not deal with these similarities (leaving the study of these to statistics), but focusses attention on that behavior where there are differences. Every "difference" is in itself an important subject of social research. It is not to be explained primarily in terms of other differences; or on any representative basis whatever. Every real "difference" is unique and in some particular unlike others. It is not to be explained by being "counted" or "measured," but by being analyzed in relation to the common and universally understood core of human experiences. When it is thus related, it passes from the different and the misunderstood to the related and the understood. The student's next task is to take up another difference, and proceed as before.

Personal experiences usually run in sequences and coexistences. To understand one experience it is necessary to know those which have preceded it, and so on. In other words, the *life history* is a document of superior worth. It traces a person's

sequences of experiences back to their beginnings, and gives the origins of his attitudes and opinions. When a person has spent his life, for example, in a labor-capital conflict, or as an immigrant in getting adjusted to the people and culture in a new country, his life history is especially valuable. The obtaining of life histories can be supplanted by no other method of social research.

The *community life history* is also vital to an understanding of the indigent social problems and conflicts, as well as to an appreciation of many of the attitudes and opinions of persons of the community. It represents a method which penetrates the social heritage and traditional bases of both personal and social problems.

VII

ANALYZING DATA

1. *The Analysis.* The problem of analyzing data begins as soon as the topic is selected. The first thing to do is to analyze one's own thinking regarding the topic, and see what one knows about it, and what experiences, if any, one has had in connection with it. The student may need to force himself to take this initial inventory of his own mind and experiences upon the topic he has chosen. If the theme is one in which he has been interested for some time, the number of ideas that he has unconsciously and inchoately accumulated upon the question, will upon examination, often prove to be amazing. These miscellaneous thoughts need to be arranged in some kind of logical order. The resultant analysis will be preliminary, unsatisfactory, and subject to change, but it will serve the useful purpose of being a working hypothesis. It will be a tentative plan from which mental exploration trips may be taken.

"I always write a semester paper first and make the analysis and outline last," said a college student, with an evident degree of pride. Such a method, or lack of method, however, is not to be encouraged. It indicates, perhaps, the work of a genius;

or more likely, that of an unharnessed, slatternly mind. A certain amount of reflection upon and analysis of one's own experiences and ideas; then exploration for new data; then more analysis, followed by further exploration — this rule shows the normal relation of analysis to exploring for data.

The analysis is rarely more than tentative; it can always be improved. The mere writing it out in analytical order, or even the mechanical copying of it when set down in writing, will likely suggest improvements in it. As one analyzes and explores, he will acquire the habit of asking questions about the topic in every detail, not only of himself but of others. This inquiring habit is the essence of sound analysis. It is a good rule never to be satisfied with any part of a social science study, not even with any phrase used in describing any part of it until it has been questioned and can be justified by both facts and reason.

No analysis of data is ever more than tentative. When it is finally made and put in the form of a table of contents it will prove, even then, inadequate. The analysis will move from improvement to improvement. It serves the purposes of an organized survey at each step of the student's progress on the given problem; it represents at each stage of its development the best plan for further exploration.

The interaction between the analysis of and the materials on a topic is continual and progressive.

To make or reconstruct the analysis suggests new ideas for the study; and to gather new materials leads to changes in the analysis. It is this interstimulation between analysis and content that spells progress. The analysis is never an end in itself; it is never completed. It is always "in process," a means, a tool for stimulating further exploration for new materials.

In the final form of the given study the analysis may well serve as a basis for the table of contents. For a paper of 2500 words, the table of contents need not cover more than one or two typewritten pages. Normally it will state the main headings and two or more subheadings under each of the major points. The analysis in the form of a table of contents is illustrated herewith; variations from this form, of course, will be made freely.

TABLE OF CONTENTS

THE SOCIAL ADVANTAGES OF RURAL LIFE

I. Introduction.
    1. Reasons for choosing the topic.
    2. Scope of the topic.
II. Advantages of Outdoor Living.
    1. Physical health conserved.
    2. Nerves remain unjaded.
III. Advantages of Rural Family Life.
    1. Unified home life.
    2. Sane training for children.
IV. Influences and Development of Personality
    1. Freedom from social conventions.
    2. Opportunities for leadership.
V. Conclusions.

2. *The Statistical Analysis.* After the important subjective data have been made objective by the personal experience and other methods of research their analysis is the next logical step. To the extent that experiences are unique and wholly different they are best treated by relating them to the known core of human knowledge. As types become isolated then statistical methods may be applied.

Statistical methods are "the principles of logic stated in mathematical terms." Statistics is applied mathematics, and social statistics is mathematics applied to social data. The science of counting and making mathematical estimates can be applied directly to data that are "objective," that is, data which can be seen, measured, or otherwise observed in uniform ways by trained persons. A few elements of statistical technique will be noted here, but the student is urged to make use of standard works on statistics.[1]

3. *The Arithmetic Mean.* One of the most common statistical terms is the average. There are at least five averages but only the first three will be discussed here. The five main types are: arithmetic mean, mode, median, geometric mean, and harmonic mean. The arithmetic mean is sometimes designated by the term "average;" there is also a

[1] Such as Horace Secrist's *An Introduction to Statistical Methods* (Macmillan, 1917); W. I. King's *Elements of Statistical Method* (Macmillan, 1912); or the more advanced work, T. L. Kelley's *Statistical Method* (Macmillan, 1923).

special mean which will be emphasized in the section which follows, that is, the weighted mean.

After all the items of a series have been found, then by an arithmetic process of adding the items and dividing the result by the number of items the mean may be located. In Table I the heights of a group of men are tabulated by inches[2] and the mean obtained, which in this instance is 65.541 inches. For the sake of greater exactness it would be well in Table I to give the height in inches to three decimal points.

TABLE I
THE MEAN HEIGHT

Inches Tall	*Men*	*Totals*
56	2	112
58	2	116
63	4	252
64	10	640
65	15	975
66	20	1320
67	21	1407
68	10	680
69	1	69
TOTALS	85	5571

Average height—65.541 inches.

The arithmetic mean is a figure containing a decimal fraction; but probably no man is exactly this height, and hence the mean falls, as is not uncom-

[2] The class interval is 63.5 to 64.499., etc.

mon, in a vacuum. The mean, however, has the merit of being easy to find, of giving equal weight to all the items (this, of course, may give rise to gross errors), and affords a general idea of the objective nature of a type.

4. *The Weighted Mean.* Very frequently it is found that each group of items in a given type of items have different values and hence are not to be thrown together in a general average without discrimination. It may be possible to give each group a specific value and then to proceed arithmetically.

Suppose that in working out final grades for students, the instructor has five sets or groups of marks for each student; suppose that the averages of each of these sets are as follows: 80 per cent for class recitations, 100 for class attendance, 90 for semester papers, 70 for written quizzes, and 70 for the final examination. He might add these together and divide by 5, obtaining an arithmetic mean of 82. Suppose, however, that the instructor decides that class recitation grades are three times as important as the attendance and the semester paper grades; and that the written quizzes and the final examination are each twice as important as the attendance and the semester paper grades. It may then be said that the different groups of items are "weighted" differently. In Table II the weighted mean is obtained by dividing the "total points" by the number of "weights."

TABLE II

THE WEIGHTED MEAN

Items	*Grades*	*Weights*	*Total Points*
Recitations	80	3	240
Attendance	100	1	100
Papers	90	1	90
Quizzes	70	2	140
Examinations	70	2	140
		9	710

Weighted Average—78.888.

By this process the more important groups of items are given a significance not attained by the arithmetic mean; the groups of lesser importance are weighted less. It is presumable that the weighted average is more accurate than an unweighted one, for a definite technique has been developed for deriving correct "weights."

5. *The Mode.* The mode is the fashion, the prevailing item or items. By a glance at Table I it will be seen that the modal or prevailing height is 67 inches, there being more men of that height than of any other. The modal height is thus nearly an inch greater than the arithmetic mean. The mode is not affected by extreme variations; it ignores them. It is often the most representative or typical symbol.

6. *The Median.* As the term implies the median is the middle term of an entire list of terms. It is not the middle group or the mean of all the items, but the middle item. If the 85 men listed in Table I were lined up in order from the shortest to the tallest, then the 43rd man either from the foot or from the head of the column would be the median man; he would be found among those listed as 66 inches tall. The median height of 66 inches is however an *assumed* median and not a *true* median. The item "66 inches" includes a group of men ranging from 65.5 inches to 66.499 inches tall, and the true median is a man who has a particular height somewhere in this group. The whole group of 66-inch-tall men represents only an approximate or assumed median.

Since it deals with the individual items the true median is more particularistic than any of the related terms; it is not affected at all by extremes, which therefore do not even need to be measured.

7. *Range.* Range refers either to the general range of (1) the individual items or (2) of the groups of items. (1) In Table I the range of individual heights is from 56 to 69 inches, or 13 inches. (2) Judged by groups of items in this case the range is essentially the same, although it might be considered as ranging from 63 to 68 inches or only 5 inches. If in Table I there were one very short person of 50 inches and one very tall one of 86

inches, then the range of individual items would be 36 inches or 3 feet, while the range by groups of four or more items would remain as before — at only 5 inches.

8. *Frequency Table.* Table I is an illustration of the simplest form of frequency table. By indicating the number of persons of each height by inches it gives a definite idea as to the "frequency" of the items for each height gradation.

9. *Discrete Series and Continuous Series.* In counting money there are breaks at least between each of the smallest items, namely, the cents. Any monetary series is discrete. The wages of factory employees, the births in any year, the population of a city represent discrete series.

The actual heights of a number of persons, on the other hand, cannot be measured with absolute exactness, but are given in terms of some measurement units, such as inches. In reality they constitute a continuous series, whereas when put into measurement units they fall into a discrete series. The same difficulty arises in treating the weights of persons or objects, or costs in terms of monetary units.

10. *Measures of Dispersion.* The best known measures of dispersion, or of variability, are the mean and standard variations.

The *mean variation* is found by taking the deviation of each single item from the arithmetic mean (or from the mode or median), by adding these deviations together, and then by dividing by the total number of cases. Such deviation, whether shown above or below the arithmetic average, is counted as positive.

The *standard deviation,* a modification of the mean deviation, is obtained by finding all the deviations from the arithmetic average; squaring each of these; averaging the total and extracting the square root; the result is the standard deviation. It is the square root of the squares of the deviations whereas the mean deviation uses the actual numbers. The squares of the deviations give greater weight to extreme deviations, and hence the standard deviation is significant when there is an unusual number of extreme deviations. The coefficient of deviation, useful for comparative purposes, is found by dividing the standard deviation by the average deviation.

11. *Quartiles.* The quartiles are those items in a series that divide the total number into fourths. The first quartile is the item that is found one-fourth the way up the scale, the second comes one-half the way up, and hence is synonymous with the median; and so on.

12. *Skewness.* Skewness refers to the degree with which the items below the mode outmeasure or

undermeasure those above, thus throwing the frequency curve out of symmetry. The frequency curve (see Section IX) may be made by drawing a line through the tops of the perpendicular lines representing each of the items arranged in order of size, weight, or in a similar fashion. The result is usually some variation of a bell-shaped curve. This curve may be skewed either to the left or the right. If the median or average are both on the same side of the mode, the skewness will be on that side of the mode. If the persons referred to in Table I were arranged in order of height and a corresponding frequency curve made it would be definitely skewed to the left.

13. *Correlation.* Correlation refers to a comparison between two groups of data. It implies some relationship that may be causal. The price of wheat and the price of bread over a period of years may show some correlation. If the changes are in the same direction, up together and down together, there is *direct* or *positive* correlation. If the variations are in opposing directions, as in the case of an increase in the wheat yield being accompanied by a decrease in the price of bread, then an *inverse* or *negative* correlation exists.

We also may want to know what the degree of correlation is between two variables and hence one of the variables may be considered as a *standard variable* by which to measure the other, which is

called a *relative variable*. If the correlation is perfect, that is, if the standard and relative variable coincide, the *coefficient of correlation* would be 1. If there is no correlation at all the coefficient becomes 0, and if the relative variable is the exact opposite to the standard the coefficient becomes –1.

To determine the coefficient of correlation, it is necessary to use a mathematical formula; the ordinary one being known as Pearson's coefficient of correlation.[3] According to it the deviations of the items of the standard variable are multiplied by the deviations of the relative variable and the product by the total number of deviations. This product is divided by the product of the standard deviation of the standard variable times the standard deviation of the relative variable times the number of pairs of items.

14. *The Probable Error.* If the variables vary together or inversely there may not necessarily be any causal relationship at all between them. Chance or coincidence may have effected the similar or dissimilar action of the variables. There is always a probable error (of varying proportions) in the apparent relationship between variables. This may be determined by multiplying the square of the coefficient of correlation subtracted from one by .6745 and dividing the result by the square root of the

[3] See a standard work on statistics for a full discussion of such formulas.

number of pairs of items. Succinctly stated, the probable error is essentially two-thirds of the standard deviation.

The interpretation of the probable error has special significance. If it is larger than the coefficient of correlation the reliability of the coefficient of correlation is nil. If it is less than one-sixth of the coefficient of correlation, the reliability of the coefficient is assured.

The practical use of the probable error arises in connection with sampling data and the need to know how far the samples are likely to run true to form, if every single item were measured and classified. The probable error eliminates the necessity of measuring every item, which would be essentially impossible where large numbers of items are involved.

15. *Index Numbers.* Index numbers are tools for getting a series of comparative values easily and quickly. The price figures for a given year, for example, are taken as a base, usually 100, and with this base the figures for succeeding years are compared. If the average price of oats per bushel in 1912 was .4380; in 1913, .3758; in 1914, .4191, we may treat the price of 1912 as 100 and then find that for 1913 the index number was 85.8, and for 1914, 95.7. The index number thus gives at a glance an idea of relative values. Index numbers are usually developed in connection with prices,

for instance, index numbers of the cost of living; they do not need of course to be limited to this field.

16. *Scales.* One of the simplest forms of a scale is a yard stick. A more complex type is a hundred per cent standard by which for example the efficiency of pupils may be measured in solving arithmetic or other problems. This scale is inadequate, however, if the problems are not all of equal difficulty, if the pupils' degree of training and intelligence widely varies; moreover, in itself it does not take into consideration the time element used in solving the problems. While quantity can be measured by the use of simple scales, the measurement of quality is a far more difficult task. A serious question is how to make a scale for determining the quality, for example, of housing conditions, of intelligence, or of social attitudes.[4] Compared to this problem, the use of scales is relatively simple. The undergraduate student is not expected to devise new scales, but he does need to know something of the use of standard ones.[5] Moreover, the student must not assume too much for "measurements;" they may not indicate a great deal regarding the intrinsic nature or the basic causes of the traits or conditions being measured.

A good example of an important scale is the one

[4] See the article "The Measurement of Social Attitudes," by W. W. Clark, *Jour. of Applied Sociology,* VIII:345-54.

[5] Cf. W. A. McCall, *How to Measure in Education* (Macmillan, 1922).

made by W. W. Clark.[6] Values were obtained for each of a large number of offenses from trained workers and thinkers in the social sciences. On this basis the offense of any child may be located on the standard score sheet. "The sum of the offense scores may be taken as a numerical evaluation of the total degree of delinquency, or the delinquency index, of a given boy."[7]

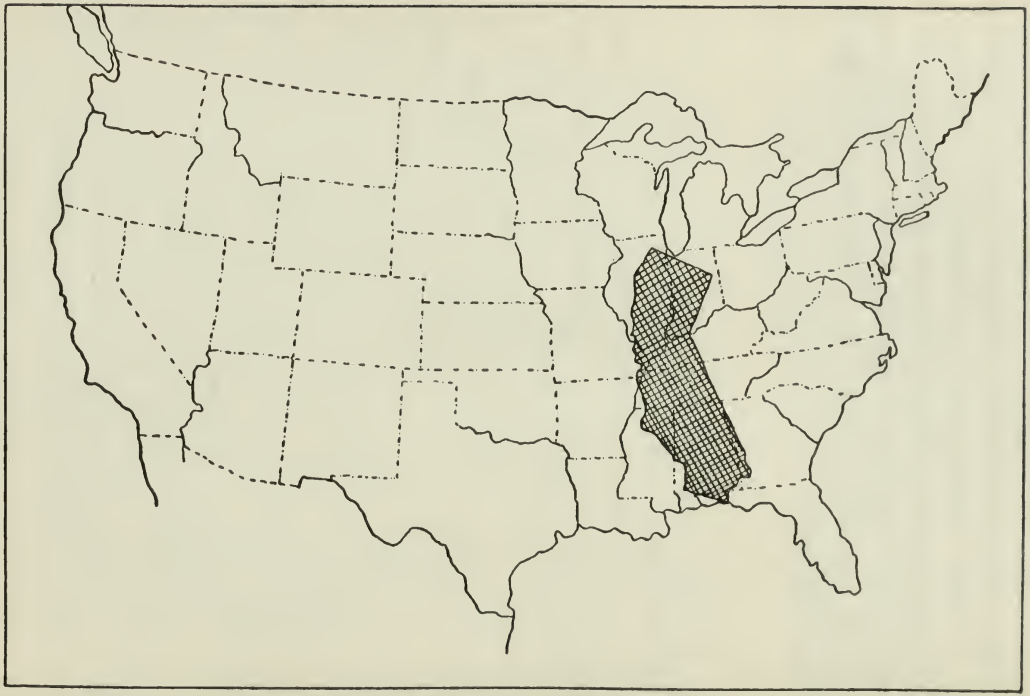
17. *Tests.* The most familiar form of tests are the "intelligence tests." These are a series of tests designed to diagnose intelligence factors, such as observing, remembering, judging, comparing, performing, and so on. The Binet-Simon tests, which were the first, have been elaborated until now there are twenty-five or more modified types of intelligence tests. A trained person is needed to take charge of their application and only highly specialized persons can work out improvements of them.

The student needs to know how to evaluate the results obtained by them, and to avoid falling into the errors that the popular mind does regarding them. Some persons are urging autocratic social control or are displaying radical arrogancy as a result of reading about the findings of intelligence tests. The tests examine not only original or potential intelligence but also the results of the men-

[6] "Whittier Scale for Grading Juvenile Offenses," *Calif. Bur. of Juvenile Research*, Bul. No. 11 (Whittier, Calif.).

[7] *Ibid.*, p. 6.

tal and social environment of the individuals tested; they indicate not only inherited racial abilities but also the effects of cultural stimuli. The relative constancy of the intelligence quotient (I. Q.) under given conditions indicates that a significant approach is being made to measuring inherited mental ability.



Map I. A Super-Imposed Map

VIII

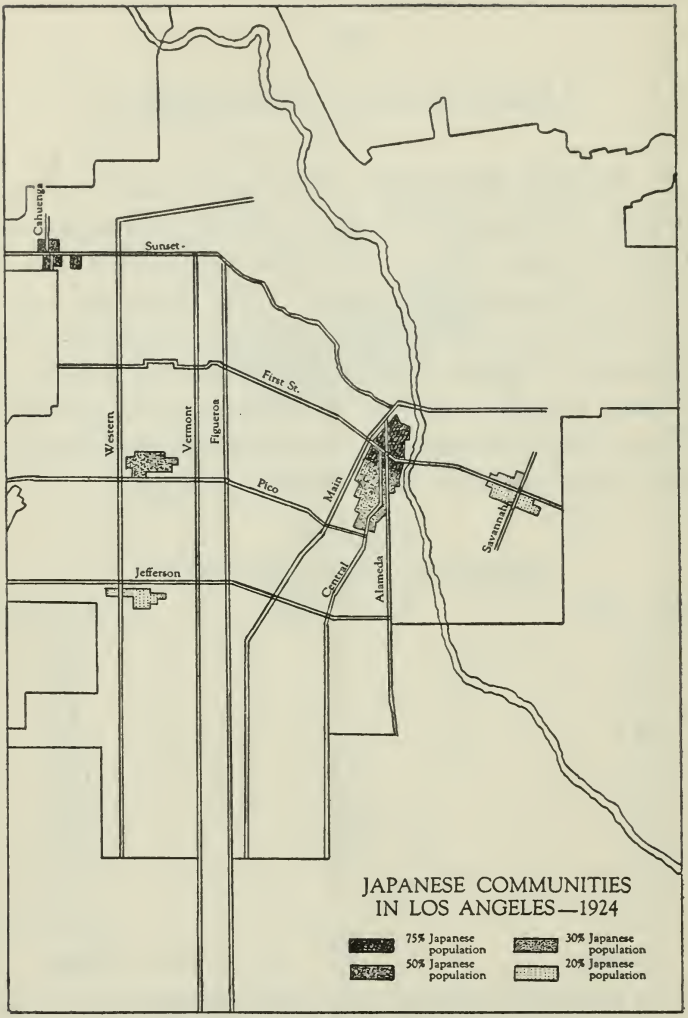
MAKING FACTS GRAPHIC

1. *Tabular Methods.* The simplest form of making facts graphic is the ordinary arrangement of figures into tables. It is the table from which charts and graphs are made.[1] To make an accurate table is not always easy. In the first place the columns of figures need to be labelled (at the top of each) correctly and in the fewest words possible. Where feasible, columns of corresponding percentages should parallel the columns of figures.

Table III
SHOWING PERCENTAGES

Inches Tall	*No. of Men*	*Per Cent*
56	2	2.3
58	2	2.3
63	4	4.7
64	10	11.7
65	15	17.6
66	20	24.3
67	21	24.7
68	10	11.7
69	1	1.1
Totals	85	100.0

[1] The introductory statements in this section concerning how to make facts graphic need to be supplemented by careful study of such important works on this subject as W. C. Brinton's *Graphic Methods for Presenting Facts* (Engineering Magazine Co., 1914); and K. G. Karsten's *Charts and Graphs* (Prentice-Hall, Inc., 1923).

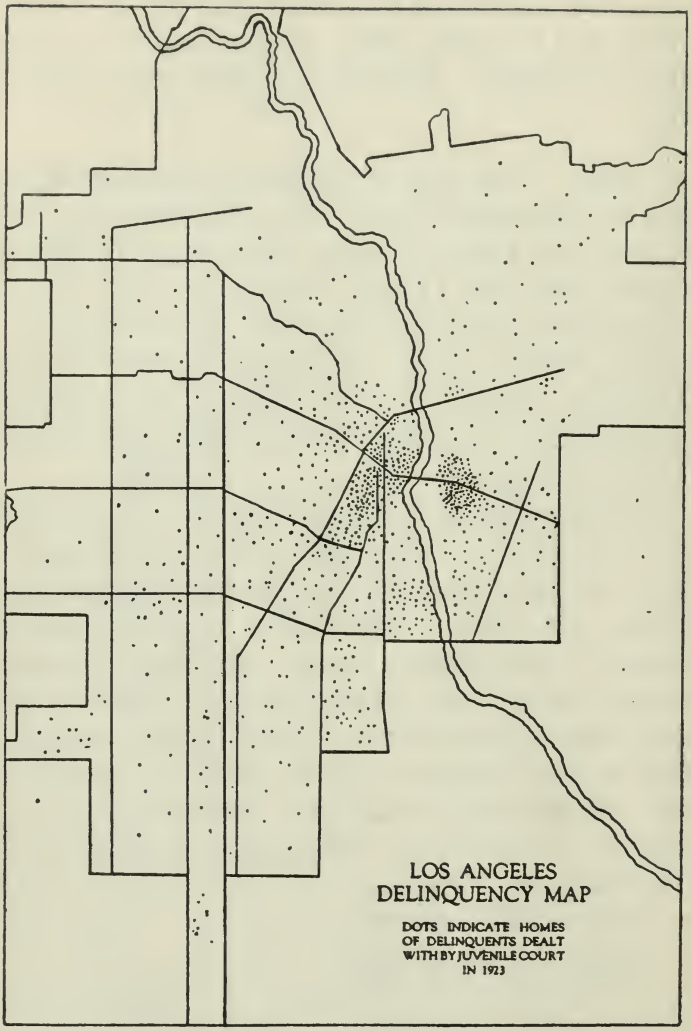


Map II. A Racial Location Map

It is also important to number the tables consecutively and to label them exactly and in as few words as possible. Wherever possible totals will be given.

2. *Maps.* The map is helpful to illustrate references to geographic areas. As a rule the map will be drawn on paper of letter size (8½x11 inches) or twice that size (17x11 inches), so that it may be folded and fitted into the final report uniformly with the regular pages. Oftentimes an outline map is adequate. Neatness and accuracy are essential in presenting the particular geographic facts which are being illustrated.

In distinguishing various areas from one another the use of different colors will suffice. For comparative purposes one map may be superimposed on another. In Map I California is superimposed showing its comparative length. In Map II certain portions are not only shaded, but in different degrees, showing the location of the Japanese communities in Los Angeles, and the relative density of each. In showing the location, for instance, of the addresses of individuals suffering from tuberculosis or of those on probation from the juvenile court, the use of flat-headed pins are best. Tacks with differently colored heads, for example, serve to distinguish between the members of different races suffering from tuberculosis. Glass headed pins or tacks with short needle points are best. (See Map III.)



Map III. A Spot Map

3. *The Diagram.* In making diagrams coordinate paper[2] is a practical necessity. The horizontal lines are called *abscissas;* and the perpendicular lines, *ordinates.* On these lines a variety of facts may be illustrated, and curves made showing tendencies. (See Chart I.)

The bar diagram illustrates facts through the use of horizontal or perpendicular bars or very heavy lines drawn parallel to each other. This is the simplest form of diagram. (See Chart II.) For purposes of comparing two opposing or complementary sets of facts a simple procedure is to shade one set of bars, as in Chart III.

The composite bar-chart is made by dividing a bar in units, allowing the whole to represent 100 per cent. Then, for example, the number of children up to ten years of age may be represented by the percentage of the total bar that the number of children of this age bear to the total population, and so on, for each age group. (See Chart IV.) By arranging similar bars for the population of other countries, a comparison of the numbers in each age-group of the various countries is at once evident. In the same way sums spent for the various items in a family budget (food, clothing, housing, fuel and light) may be represented by a comparative bar; the same items for successive years may likewise be charted; and comparisons are easily visible.

[2] The publishers of this book also publish a great variety of coordinate papers for statistical work. See list on page 105.

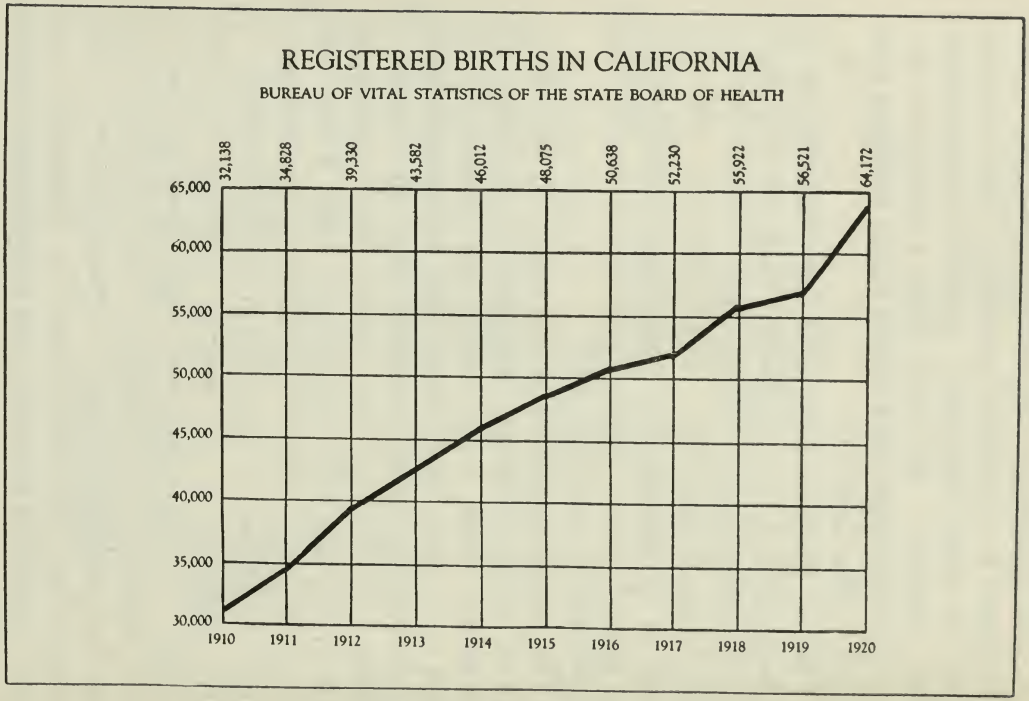


CHART I. A CURVE CHART

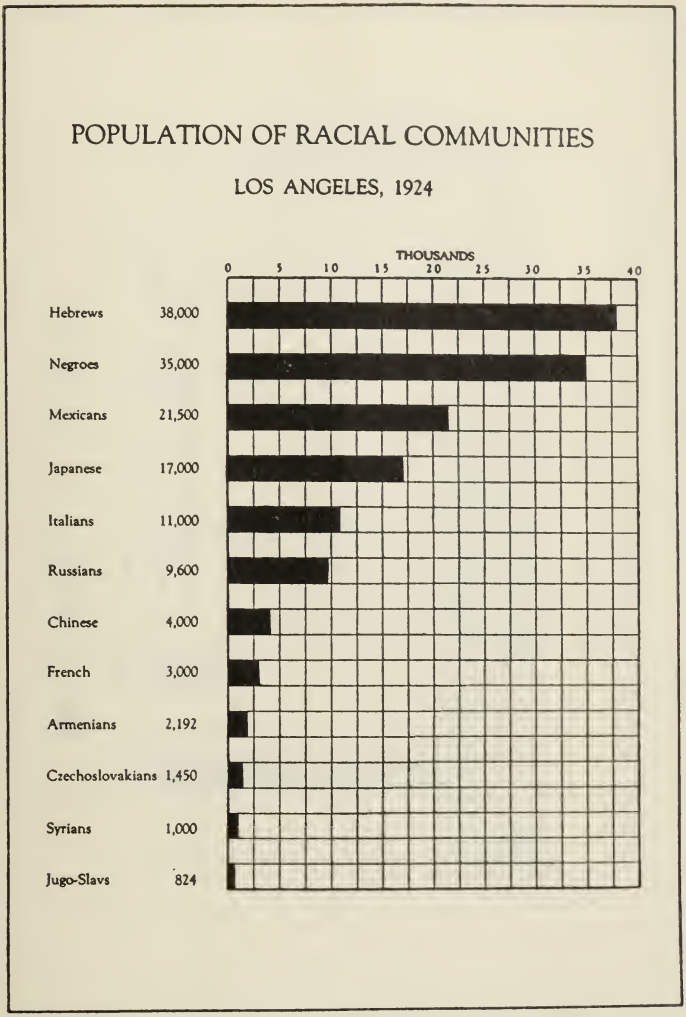


Chart II. A Horizontal Bar Chart

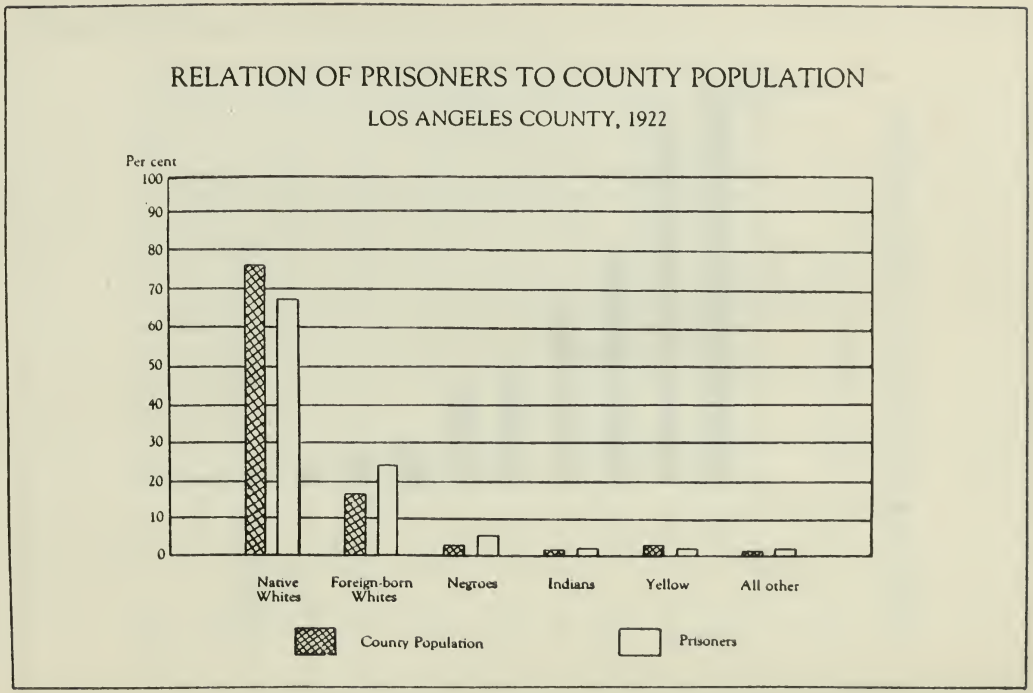


CHART III. A SHADED BAR CHART

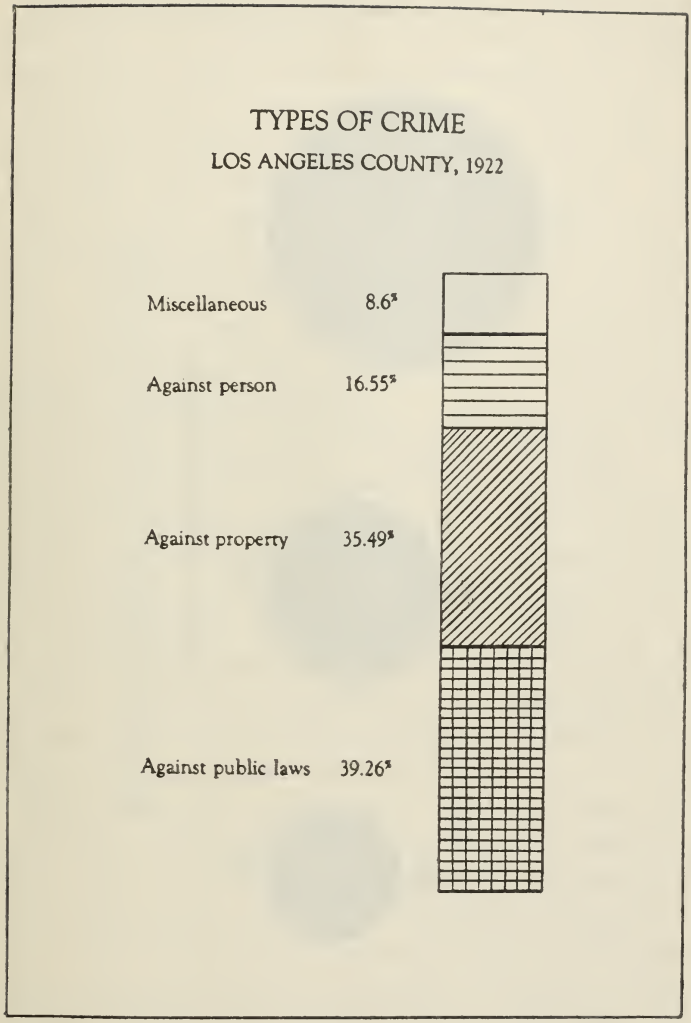


Chart IV. A Composite Bar Chart

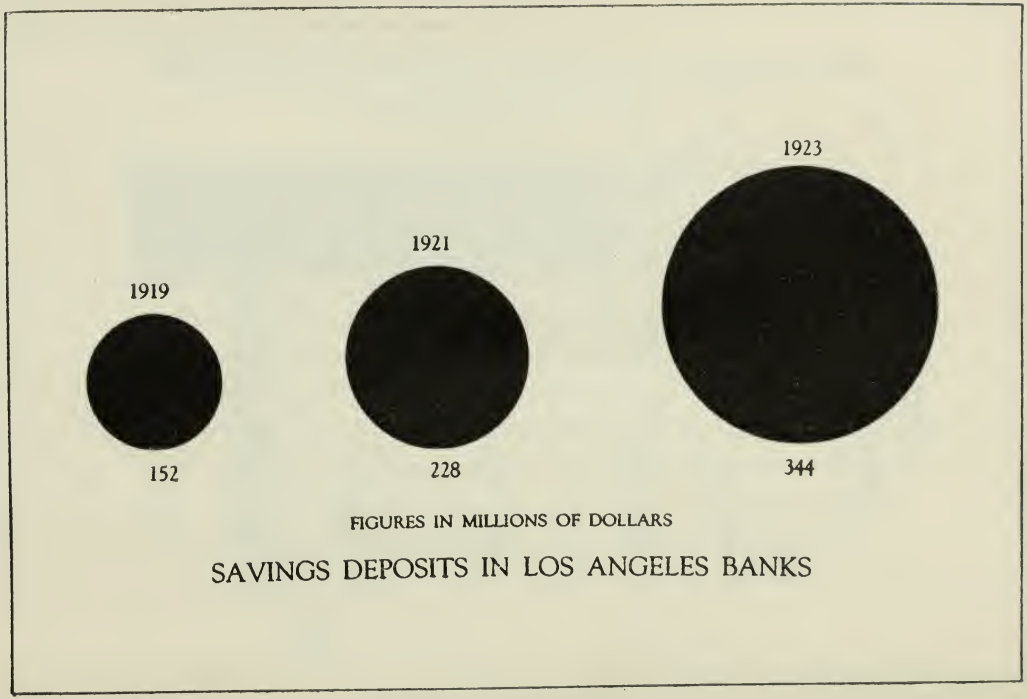


Chart V. A Circle Chart

The circle diagram may be used in showing relationships in organization, but not for indicating comparative areas or measures, because if you look at the diameter of the circles you get one idea of comparative sizes, but if you consider the area of the circles you receive a different impression. (See Chart V.) In a similar way the use of squares as diagrams tend to create false or confusing comparisons. Likewise, the drawing of different sized human figures to represent differences in population may give wrong conceptions. In this instance the difficulty can be overcome by making the human figures of the same size and by using different numbers of them to indicate population variations.

The Pie Chart (Chart VI) has a wide popular appeal and is commonly used. Its weakness, however, consists in the difficulty of comparing the arcs at the perimeter, of comparing the angles, and of comparing the areas. Neither is it easier to compare the arcs, angles, or areas of two or more pie charts. Moreover, it is not always easy to label the segments when they are many and thin.

The Multiple-Unit Charts, such as Charts VII and VIII, are simple, direct, and easily visualized. They are the bar charts visualized realistically at some expense to exactness. The Block Diagram, or Box Chart (Chart IX), gives an idea of the organization purposes of an institution. It gives a classification of the various activities that are being carried on, but requires careful thought in order that

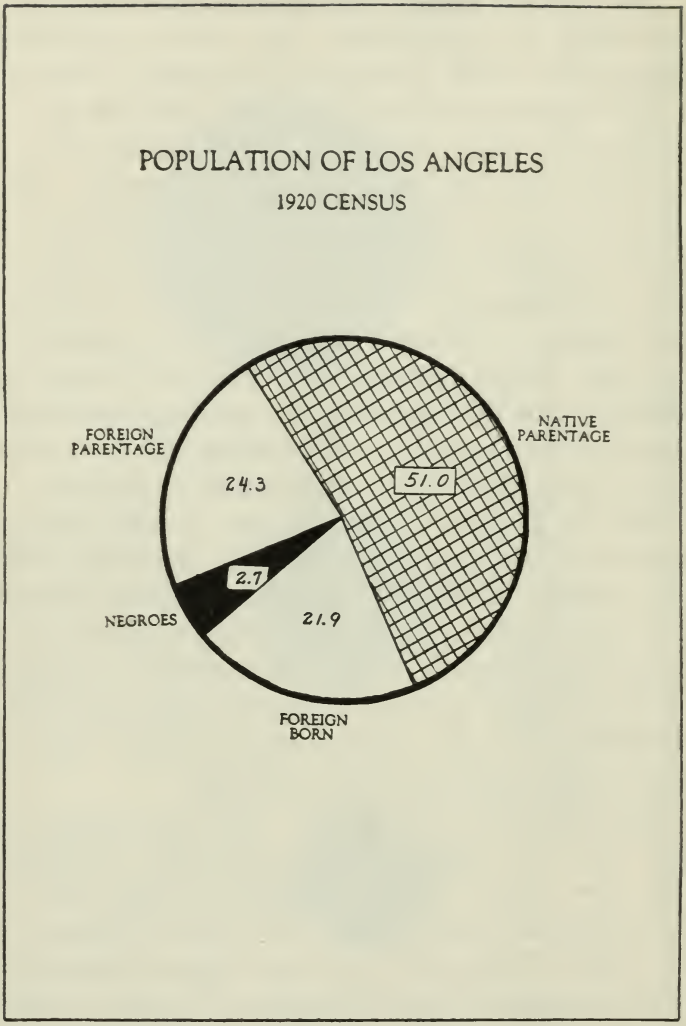


CHART VI. A PIE CHART SHOWING PERCENTAGES

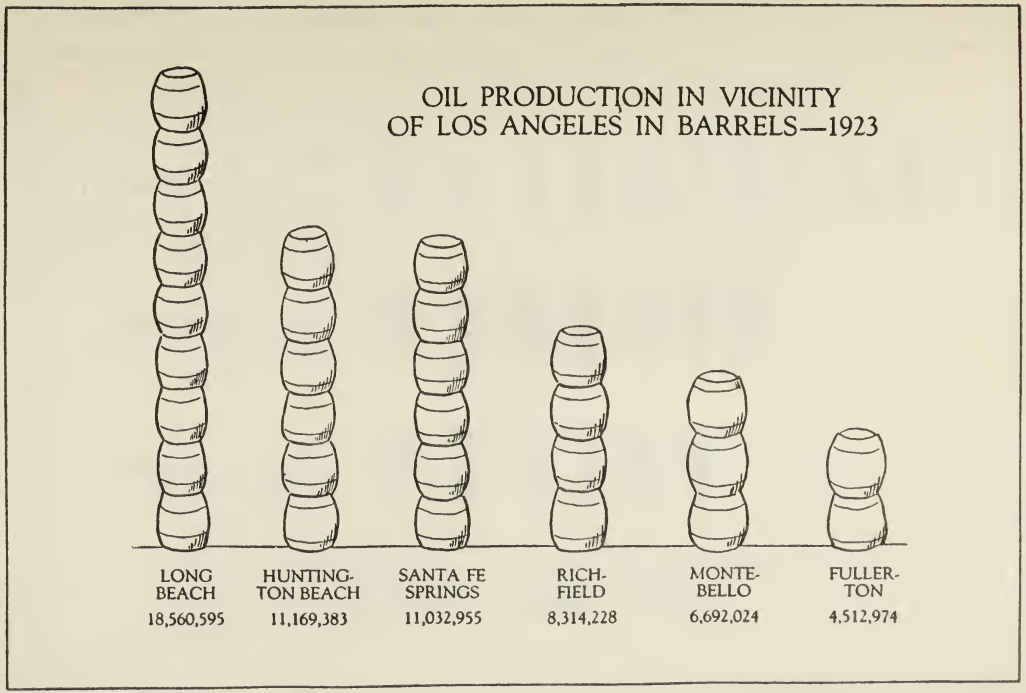


CHART VII. A MULTIPLE-UNIT CHART

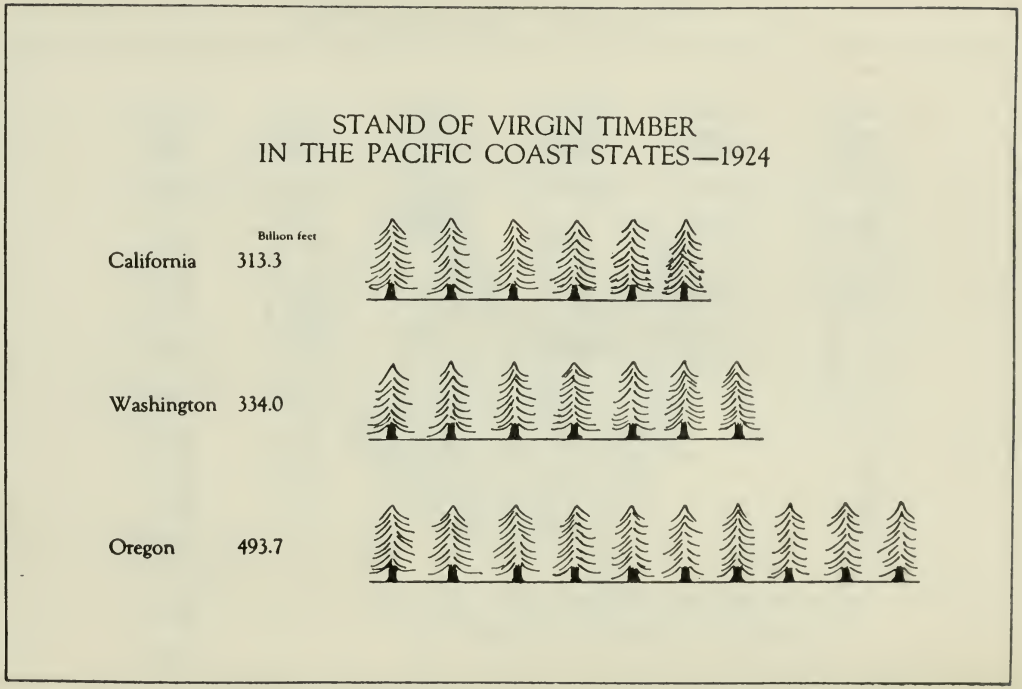


CHART VIII. A MULTIPLE-UNIT CHART

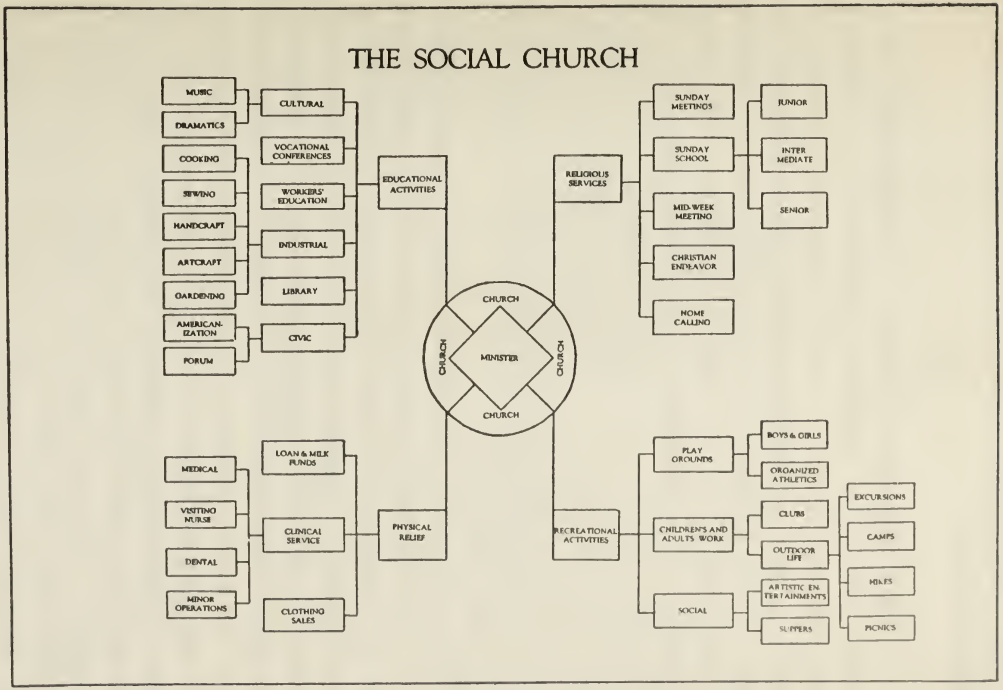


Chart IX. A Block Diagram

the relationship between the organization units are properly shown.

4. *The Frequency Charts.* In preparing a frequency chart the simplest procedure is to make a perpendicular bar chart and to connect the tops of the bars, or by using abscissas and connecting the tops. If the number of items and hence of the bars or abscissas that are used is small, the resultant frequency "curve" will be very irregular and not "smooth," but if the number of items is large the curve will be smooth. It is permissible to avoid sharp turns and to smooth out irregular fluctuations. Smoothing brings out tendencies but conceals individual facts.

For comparative purposes two or more curves may be put upon the same chart; the one representing the number of men and another representing the number of women employed at different wage scales in a factory or geographic area. In imposing one curve on another it is necessary to use the same units of measurement on the lower ordinate and the left hand abscissa; it is also necessary to use lines of different heaviness so that when they cross one another confusion will not result as to which is which. A heavy line and a dotted line, or lines of different colors will meet this difficulty. As a rule not more than three lines can be put to advantage on a single chart.

IX

DETERMINING THE FINAL FORM

In preparing the first written draft of a social science paper the student will see that a proper proportion is maintained between the different parts of the work. Usually the introduction is best when brief. The trained student does not allow himself to become lost in long and drawn-out introductory material. He states his assumptions and other introductory data in brisk sentences, including simply the materials that are necessary for an understanding of the main study. Nothing bores or prejudices a reader more than an elongated introduction.

The best social science papers often have no introduction at all. The writer simply begins with a description of his experimental work, gives analyses, deductions, and conclusions. As a rule the shorter the introduction the better.

The main text of the paper will build fact upon fact in as natural an order as possible. The truth is never to be strained for effect. Those climaxes of thought will be built up that are inherent in the natural sequence of facts. Whenever the student is doubly sure of his ground he may criticize his materials, favorably or unfavorably. At every turn he remains master of his data.

The closing paragraphs will give a brief summary of the territory that has been covered and of the meaning of the whole study. It is a mistake to introduce any new facts in the conclusion; it is the interpretations of data already presented that are exceedingly important. The drawing of concluding principles calls for the student's best efforts. At this point the average student fails, and often because he does not recognize their importance or has allowed himself to "grow stale" and fatigued by the time he reaches the "conclusions." He may gather an immense amount of data, and present it logically well. Then, he may conclude his paper with a few meaningless generalizations or insipid statements. He needs to reserve his best mental effort for the final stretch. If he fails here, his earlier good work will be greatly discounted. He needs plenty of time to work the materials over and over, to reflect upon the final interpretations and conclusions. There occurs here the student's supreme opportunity for manifesting his ability. To throw a group of facts together or to compile ideas from other people's writing is a very simple piece of mental work. Real brain power, patience, long and hard work are required to make a worthy conclusion.

A natural, straight-forward style of writing is desirable. A variety in the choice of words is important. On the other hand, flowery language and mixed metaphors will be avoided. Hackneyed or trite phrases will be eliminated. Slang will be

shunned, because as a rule it is indicative of a small vocabulary and lack of culture. A long word will not be used when a shorter one will suffice.

For every idea there is a best, a most appropriate word or term. It is worth while to consult the dictionary frequently as a means of making the correct choice of words. A sense of pride may be taken in acquiring a clear, effective style, in keeping the tenses of the verbs uniform, in introducing new words, similes, and other figures of speech, providing the variations are natural and fitting. No pains need be spared in rewriting particularly difficult passages several times, because improvements will probably accompany each revision, for sometimes the student's best ideas will arise only when he is engaged in actual writing. It is also important to study the style of writers of good English. The practice of writing verse will often increase one's vocabulary and give a more pleasing style. It is also valuable to spend some time in reading good poetry aloud, because the ear often catches what the eye fails to perceive, and because a trained ear is invaluable for the best writing. Above all things else, the student will give no signs of carelessness in style.

The final draft of the report when ready to be submitted to the instructor will be either carefully hand-written or typed. Legible hand writing in ink, done neatly, in a uniform way, and without hurry, will meet ordinary requirements; a typewritten document, however, is more standard, gives

a better appearance, and is usually essential if the report is to be sent to a printer.

It is preferable that the final draft for the instructor be written on paper of letter size, 8½x11 inches. A margin of at least one and one-quarter inches at the top and on the left-hand side, and of one-half inch at the bottom of the page is necessary. A substantial quality of white writing paper is a minimum requirement. Typewritten material is ordinarily double-spaced, except when several lines are quoted; then single spacing is the rule.

The general sequence in the paper will ordinarily be as follows:

1. Title page
2. Table of contents
3. Text of paper
4. Bibliography

The title page gives the title, capitalized, of the paper, the name and number of the course of study for which the paper is written, the name of the college or university, and the date of finishing the work. A well balanced form is pleasing.

(Title page)

THE CULTURE OF THE AZTECS
By John A. Jones
Written for Sociology 154, Anthropology
University of Southern California
Instructor, Dr. Clarence M. Case
May 10, 1924

In writing the paper each leading section will be introduced by its proper heading, corresponding with the headings in the table of contents. The beginning of each leading section may be separated by an extra space of perhaps a half inch from the preceding section. It is not necessary to start a new section on a new page, except in case of the chapters in a book, a master's thesis, or a doctor's dissertation.

It is especially important to give credit to all authorities whose ideas are paraphrased or quoted. Whenever the ideas of anyone besides the writer are used in any way, a small Arabic numeral is placed at the end of the paraphrased or quoted statement, slightly elevated, and repeated at the foot of the page. The footnote reference may be set off from the text above it, either by an extra space or a line. The footnote numerals may begin with an Arabic numeral one on each page, or if the materials are perchance to be printed, they may begin with"1" and run consecutively to the end of the paper without any breaks in the numbering. On the whole, the latter method is preferable; less confusion results.

As a rule, the footnote explanation gives the name of the authority who is cited (with initials first rather than last as in the case of the bibliography), the title of the book underscored, and the pages.[1] If the reference is to an article, then the footnote will read: name of authority (initials

first), title of article in quotation marks, title of magazine abbreviated and underscored.[2] If the name of the authority is mentioned in the context of the paper, such as the name, for example, of C. H. Cooley, it need not be repeated in the footnote.[3] If the reference is to an authority who supplements in some interesting way the context of the paper, or who perhaps disagrees from the writer of the paper, then the footnote will be introduced with the symbol "Cf.," which means "compare."[4] If a reference is made a second or third time to a particular book or article in immediate succession, the abbreviation, *ibid.*, underscored, together with the pages of each reference will be given; in other words it is not necessary to repeat the whole reference in the footnote.[5] If the second or third reference to a specific book or article is not made immediately but two or three pages later on, then the abbreviation, *op. cit.*, underscored, with the necessary pages will be given.[6]

Examples of Footnotes

[1] E. A. Ross, *Principles of Sociology*, p. 96.

[2] C. A. Ellwood, "Education for Citizenship in a Democracy," *Amer. Jour. of Sociology*, XXVI:75.

[3] "Reflections upon the Sociology of Herbert Spencer," *Amer. Jour. of Sociology*, XXVI:130.

[4] Cf. L. T. Hobhouse, *Social Development*, Holt, 1924.

[5] *Ibid.*, p. 133.

[6] *Op. cit.*, p. 147.

Explanations and rules such as those given in the foregoing lines are worthy of being mastered. The footnote forms are the standard that are used in well-known books, such as Snedden's *Educational Sociology,* Ely's *Outlines of Economics,* or Park and Burgess' *Introduction to the Science of Sociology.* The student will obtain further assistance by frequently consulting a guide book such as *A Manual for Writers* (University of Chicago Press, latest edition).

The student will aim constantly at accuracy in punctuation, in spelling, in syllabication, and in paragraphing, as well as in choosing the right words. No pains will be spared to settle all doubtful points by consulting a standard dictionary, the encyclopedias, the leading authorities in social science, and the manuals for correct w. ting.

Special care will be given to the bibliography (which appears last in the paper), in order that no errors appear in it, either with reference to spelling, punctuation, or the arrangement of the surnames of the authors in alphabetical order. If more than one book by a specific author is listed, it is not necessary to repeat the name of the author; it is better to use a dash in the following fashion:

Ward, Lester F., *Psychic Factors in Civilization,* (Ginn, 1906).

———*Applied Sociology,* (Ginn, 1906).

When completed the manuscript should be inserted and fastened neatly in an appropriate cardboard cover, bearing the name of the student, the title of the course of study, and the title of the paper.

In writing the paper the student will be wise if he chooses a quiet place in which to work — where no one will interrupt. The mind cannot do its best and most original work beset by the constant hum of conversation, or by the disturbing activities of others. The brain produces its best intellectual work when least likely to be disturbed. Noise and disturbance are fatal to reflective thinking.

Before the final writing is begun, the student will have the work in such a shape that he can lay it aside and practically forget it for a time — at least two or three weeks. When it is taken up after the interim the mind will bring to it a surprising degree of fresh criticism; the presence of unsuspected errors will be detected and new ideas will occur to the thoughtful student. Further, this precaution will protect the student against growing "stale" on his subject. In working out the final draft, the student needs to be at his mental best and to be overflowing with his theme.

A high degree of satisfaction comes from doing original work. The college student is not called to be an imitator, a copyist, a cataloguer. He is a potential inventor. It is not necessary for him continually to bemoan the fate that he is not a born genius. He is not obliged to live in other people's

minds. Originality, invention, creation are possible goals for him. The student should never be satisfied with doing merely *good* work; nothing less than his best should satisfy him, and that only temporarily, for what is his best work today may be his second best tomorrow. His possibilities in the direction of originality he may never have surmised.

X

PREPARING THESES AND DISSERTATIONS

The term, thesis, is properly used only in connection with the original study that is required for the degree of Master of Arts, or a piece of investigation of equivalent caliber. The undergraduate student is usually unable to write a paper worthy to be called a thesis. An undergraduate student, however, who gives himself a training in writing papers, such as the preceding pages of this booklet presupposes, will ordinarily have no special difficulty in writing a thesis for the degree of Master of Arts.[1]

The topic for a master's thesis is usually very specific and limited in scope. The student is expected to master all the literature that has been written on his subject in any language, and, as a rule, make a special study of his own in the given field. The rules for collecting data, digesting and interpreting the results, and for the mechanical writing of the thesis have been covered in the main in the foregoing pages.

[1] In another connection the writer is working out an analysis of the methods of social research, giving as full attention as possible to the fundamental theory involved. The discussion, therefore, of advanced social research will not be taken up here except in the most introductory way possible.

A social science thesis subject usually requires an academic year to prepare. Even then the topic will need to be in a field with which the student is quite familiar and where he already has fully developed backgrounds of thought. The time element is another essential in preparing a master's thesis.

The length of a social science master's thesis varies according to the topic and method of treatment. As a rule fifty to one hundred pages, typewritten (250 words a page), mark the limits, although quality is more important by far than quantity. The preparation of a thesis is a stimulating mental undertaking. It is a superior piece of work, meriting publication. It represents the student's mental processes at their best, trained, analytic, synthetic, creative. Its successful completion gives a sense of independence that can be secured in no other way.

The dissertation for the degree of doctor of philosophy carries research another step — to its highest levels in matters of intensive study. The dissertation involves not only a mastery of knowledge, but a contribution to that knowledge. It requires all that the thesis does, but in ways more intensified, prolonged, and original. It gives a training in prolonged, abstract reasoning, calling forth the highest intellectual powers. It is not prepared primarily for the public to read, but for the examination of trained and scholarly minds.

A social science book at its best is a thesis or dissertation put into readable shape for the public. It

is scholarly and thorough, but the style is "lightened up." It takes new and important ideas and puts them in a simple, informational, descriptive, and argumentative fashion.

While theses and dissertations are both intensive in nature, and books may be either of an intensive or a survey nature, the preparation of each constitutes the highest challenge to a person's originality. Each means a chance to do something new, unique, and worthy of a hearing. Each means a possible expansion and substantial growth of the student's mental power and grasp.

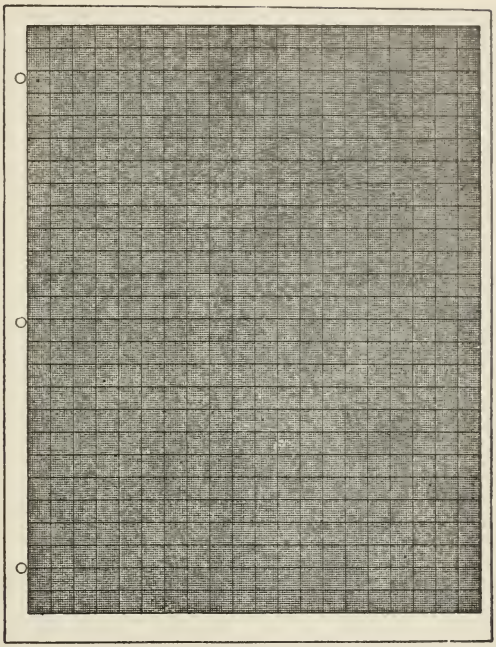
At all events, first-hand studies pursued diligently, inductively, experimentally, are of supreme value. To avoid speculating, a spinning out of opinions, and even a logical but endless discussion of theories remote from consideration of first-hand data, such as human experiences, social contacts, conflicts, and accommodations, is all-important. When a student once gets the call to research, and once feels the thrill involved in the ecological or environmental, the statistical or mass, and the personal experience or interpretative approaches to social problems, each coordinated with the other, he is on the road to original research.

The advanced student having his "problem" and being equipped with an ecological, statistical, personal-interview technique will still need the support that comes from other persons similarly equipped. Where two or three research students may gather

together at intervals for mutual discussion of problems, technique, findings, there a new research center will be established. It will take on the nature of a research clinic, where social problems may be examined, diagnosed, and new procedures prescribed. This research center will be mutually stimulating and highly interesting to all who participate, and may become of great value to the community in which it is located. After all, the thesis and the dissertation are largely "training table" exercises for the greater goal, namely, of making independent original studies. By means of them one may learn how to proceed without the direction of others, and ultimately to be a director of others in making social science studies. These, in turn by the same method, may multiply their research activities, and further the process of making social science studies until civilization with all its conflicts and other problems may be understood by all, and its manifold activities be put for the first time on a truly scientific basis.

INDEX

CO-ORDINATE PAPERS FOR GRAPHIC CHARTS



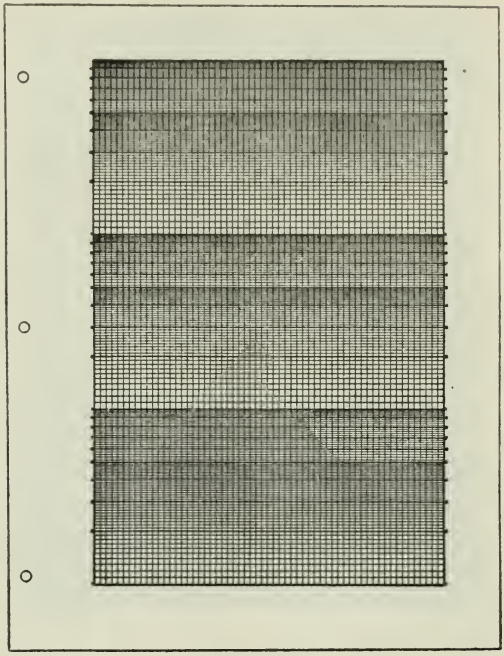
No. 6313
10 x 10 Lines to Centimeter

These co-ordinate papers have been designed particularly for the plotting of graphic charts for statistics of all kinds. The sheet shown above carries an accurately ruled plate 26 x 20 centimeters, with the fine lines spaced 10 to a centimeter. This millimeter paper is the most widely used of any of our co-ordinate papers. The plate is printed on heavy ledger paper in *"Neutralized Orange"* ink. This color allows the use of Black, Red, Green, Blue, or Yellow drawing ink, which will show up on the plate with perfect contrast, used either separately or in combination. All our papers are 11 x 8½ inches in size, which is the standard letter or typewriter size. Paper will be supplied without punched holes, unless ordered punched. If ordered punched, the standard spacing — three holes spaced 4¼ inches center to center — will be sent, unless exact specification of other punching be given.

Price, $1.00 per 100 sheets, prepaid

Jesse Ray Miller, 3474 University Avenue, Los Angeles

CO-ORDINATE PAPERS FOR GRAPHIC CHARTS



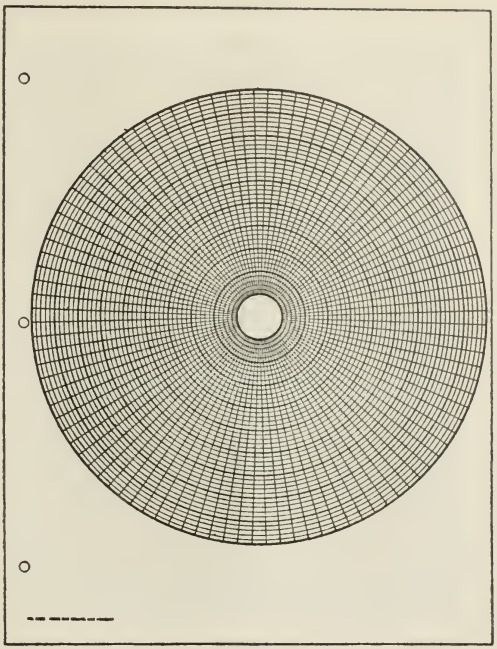
No. 6404
LOGARITHMIC PAPER

LOGARITHMIC PAPER permits the showing of comparative values, and comparative fluctuations in value, with accuracy. No matter where the curve is located on this chart, the upward or downward inclination of the curve is the same for the same percentage of change. In using ordinary rectangular paper the curves on the upper portion of the chart represent larger quantities, and will have much more vertical movement, up and down, than a curve on the lower portion of the chart that shows the same percentage of variation. Where the amounts compared differ greatly in value or volume, the use of Logarithmic Paper obviates this difficulty and permits an accurate comparison of the percentage or ratio of change of the various values. No knowledge of higher mathematics, or logarithms is necessary to use this paper.

Price, $1.00 per 100 sheets, prepaid

JESSE RAY MILLER, 3474 UNIVERSITY AVENUE, LOS ANGELES

CO-ORDINATE PAPERS FOR GRAPHIC CHARTS



No. 6415
CIRCULAR PERCENTAGE PLATE

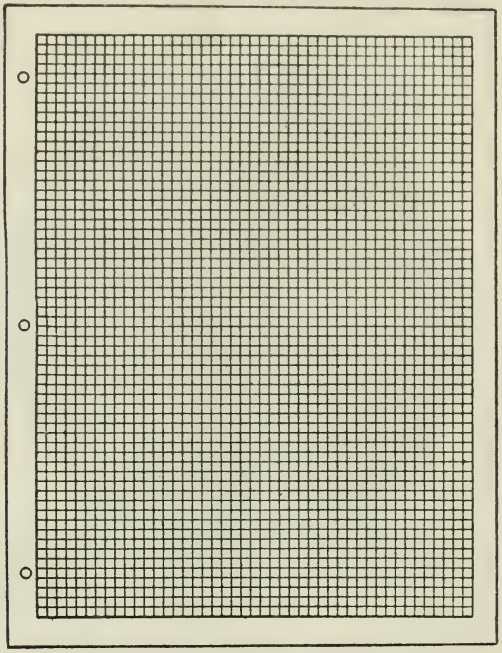
THE CIRCLE ON THIS PLATE has a radius of exactly 10 centimeters, with heavy con-centric lines spaced every centimeter. The lighter con-centric lines are spaced every two millimeters. This permits many circular, or continuous diagrams to be plotted that would be impossible on ordinary papers. The circle is divided into exactly 100 equal parts, which permits the plotting of percentages or *"Pie Charts"* with a great saving of time and effort.

We also make No. 6420, which is a similar plate, but with the circle divided into the standard 360 degrees, which is more useful for engineering and mathematical formulae, but not so adaptable to statistical diagrams.

Price, $1.00 per 100 sheets, prepaid

JESSE RAY MILLER, 3474 UNIVERSITY AVENUE, LOS ANGELES

CO-ORDINATE PAPERS FOR GRAPHIC CHARTS



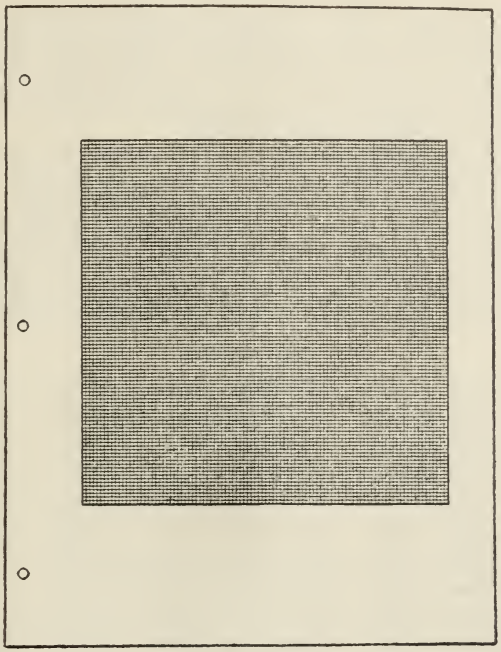
No. 6060
6 x 6 TO THE INCH

FOR SOME PURPOSES fine lines only are desired, and heavy main dividing lines are not used. For such purposes we make sheets like the above, in which all divisions are uniform light lines. In the above, No. 6060 Paper, the lines are spaced 6 to the inch. We also make plates with the lines spaced 4 to the inch, in three different plate sizes. Sheets with the smaller size plates allow more marginal room for figures and explanations.

No. 6040,	4 x 4 lines to the inch.	Plate size 10 x 7½ inches
No. 6043,	4 x 4 lines to the inch.	Plate size 9 x 6½ inches
No. 6044,	4 x 4 lines to the inch.	Plate size 7¾ x 7 inches

Price, $1.00 per 100 sheets, prepaid

JESSE RAY MILLER, 3474 UNIVERSITY AVENUE, LOS ANGELES



No. 6405
SQUARE PERCENTAGE PLATE

THIS PLATE is a square with 100 equal divisions each way. Statisticians are finding it one of the most useful all-around papers that we make. Horizontal or Vertical Bar Charts may be plotted on it with a minimum expenditure of time and effort. Percentage Diagrams of all kinds may be produced on this plate with surprising ease. It is really adaptable to a greater variety of charts than any other plate we show. The margins, both above and below, are very ample, which allows the title and explanation to be written or typed on the same sheet with the chart in a very presentable manner.

Price, $1.00 per 100 sheets, prepaid

CO-ORDINATE PAPERS FOR GRAPHIC CHARTS

We offer a wide variety of co-ordinate papers that are suitable for making graphic charts for statistics of all kinds, plotting curves, and for mathematical and engineering diagrams. Many persons who are familiar only with the poorly printed "Graph Paper" that is so widely used in schools will be surprised with the variety, and the high quality and uniformity of the co-ordinate papers we make.

All our papers, unless otherwise specified are 11 x 8½ inches in size, printed in "*Neutralized Orange*" ink on 24-lb. Ledger Paper. All paper will be sent without punched holes unless ordered punched. If ordered punched, the standard spacing — three holes spaced 4¼ inches center to center — will be sent unless exact specification of other punching is given. If other punching is desired send a sample sheet with your order. Special punching will cost 15 cents per 100 sheets additional. All the various plates sell at the uniform price of $1.00 per 100 sheets, prepaid.

List of Sizes

6040	4x4 lines to inch.	All Faint Lines.	Plate	10x7½	inches
6043	4x4 lines to inch.	All Faint Lines.	Plate	9x6½	inches
6044	4x4 lines to inch.	All Faint Lines.	Plate	7¾x7	inches
6060	6x6 lines to inch.	All Faint Lines.	Plate	10x7½	inches
6061	6x6 lines to inch.	Heavy Inch Lines.	Plate	10x7	inches
6080	8x8 lines to inch.	Heavy Inch Lines.	Plate	10x7½	inches
6081	8x8 lines to inch.	Heavy Inch Lines.	Plate	10x7	inches
6100	10x10 lines to inch.	Heavy Inch Lines.	Plate	10x7½	inches
6101	10x10 lines to inch.	Heavy Inch Lines.	Plate	10x7	inches
6121	12x12 lines to inch.	Heavy Inch Lines.	Plate	10x7	inches
6161	16x16 lines to inch.	Heavy Inch Lines.	Plate	10x7	inches
6203	20x20 lines to inch.	Heavy Inch Lines.	Plate	9x6½	inches
6301	5x5 lines to Centimeter		Plate	23x17	cm.
6302	5x5 lines to Centimeter		Plate	24x18	cm.
6303	5x5 lines to Centimeter		Plate	26x20	cm.
6311	10x10 lines to Centimeter		Plate	23x16	cm.
6313	10x10 lines to Centimeter		Plate	26x20	cm.
6320	2x2 lines to Centimeter		Plate	24.5x18	cm.
6324	2x2 lines to Centimeter		Plate	19x18	cm.
6404	Logarithmic		Plate	9x6	inches
6405	Square Percentage Plate 100x100		Plate	6¼	inches square
6415	Circular Percentage Plate		Plate	20	cm. diameter
6420	Circular Degree Plate		Plate	20	cm. diameter

Price, $1.00 per 100 sheets, prepaid

Jesse Ray Miller, 3474 University Avenue, Los Angeles

Bogardus, Emory S

Making social science studies